POPULAR SCIENCE

MONTHLY

MECHANICS - AUTOS - HOMEBUILDING

Ford's Cure for Bumps
PAGE 115

25¢
January

Whalers Adopt New Electric Harpoon PAGE 146

11 Pages About Glues and Gluing PAGE 199

IDEAS ON HOME

Take Your Choice of Any One

Make your home the pride of your town with these money-saving books.

Learn to cut thread, ream pipe; make tight connections; use every type of fitting.

SAVE $60.00 or more on outdoor fireplace. Picnics at home!

Your electrical Dream Kitchen; counter lighting, extra appliance outlets!

Finest How-to-Do-It Books to Save You Hundreds of Dollars!

HERE they are! Just the book or books you want for the home improvements you are making or thinking of right now. Each book packed to over-flowing with a wealth of practical money-saving ideas! Packed with the finest kind of illustrated how-to-do-it guidance to save you time and work! Packed with sound advice to save you hundreds of dollars!

Comparable to $4.00 Value — Now Only $1.95!

What improvements do you want? Extra Outlets wherever you want them? Extra Bath? Modern Kitchen Sink? More Built-in Closets? Extra Bedroom? Attic or Basement converted into Playroom or Apartment? Garden Walls, Walks? Garage? $1,000 worth of Furniture? Whatever your family's desires, here is the book that shows you exactly how to do it yourself — make big cash savings — and get pleasure and pride in doing an A-1 professional job!

True to Wise big-value policy, each book is a miracle bargain. Where other publishers might charge about $4.00 for comparable books, Wise slashes that figure IN HALF! Look them over. Take your choice of any one at miracle-low $1.95 each! Keep any book only after you enjoy full week's FREE Trial. Or return and owe nothing.

HOME FURNITURE BUILDER

How to Make Over $1,000.00 Worth for Cost of Materials Alone!

Over 500 How-to Pictures and Diagrams. Complete Plans, Material Lists and Instructions make every step easy. Save $17.00 on Tool Cabinet, Work Bench and Tool Box. Save $20 to $100 on Built-In Closets, Chests, *etc.* Save up to 75% on Tennis Table, Lawn Chairs, Swings, Fence, Gate, Dropleaf Table, Phone Stand, Radiator Enclosure, Cabinets, Lamps, Breakfast Bar, *etc.* How to get Blonde, Knotty Pine, other finishes. Plans alone comparable to $25 value.

MASONRY AND WATERPROOFING

All You Need Know about Concrete, Cinder and Glass Blocks, Stone, Brick Work, Stucco, Waterproofing Inside and Out!

SAVE $100.00 on new Driveway, $40.00 on Brick Steps, up to $1000.00 on concrete block Garage. Build durable Foundations, Sidewalks, Walls, Curbs, Play Courts, Lily Pond, *etc.*—*all for mere cost of materials alone!*

Learn Formulas. How to mix Mortar and Concrete. Color Concrete. Waterproof from Foundation Footing to Chimney Top. Apply Stucco, Decorative Finishes. Repair Cracks, Leaky Roofs. Estimate Quantities, Specify Materials, Install TV Antenna, *and much MORE!* A fascinating hobby!

HANDBOOK OF HOME PLUMBING

Save Money on Repairs! Modernize Kitchen, Bath!

Step-by-step illustrated directions show you how to install EVERY type of modern Plumbing Fixture—Combination Sink, Shower, Basin, Toilet. Add luxury with Dishwasher, Washing Machine, Disposal Unit, Tub, Drain, Sprinkler Outlet, *etc.* Save up to $300.00 a room!

Make repairs on Sink, Shower, Bath, Toilet. Clean clogged Pipes. Fit Valves, Cut and Thread Pipes. Install Copper Tubing, Lead, Brass, Cast Iron Pipes. Fix Leaks, pack water-tight Joints, Connect Hot Water Tank. Enclose old-fashioned tub with glazed Ceramic Tile. Build Septic Tank. Make Emergency Repairs fast—without spending one cent for outside labor. *And Much MORE!* Save money now and for years to come!

WISE HOME ELECTRICAL HANDYMAN

Save on Lighting, Wiring, Appliance Repairs

Fill your home with electrical beauty, comfort and convenience. "1-2-3" instructions, plans, sketches, diagrams make it easy to install Modern Lighting Fixtures... wire handy Extra Outlets... repair Appliances. Save high labor Costs!

Add handy 2- and 3-way switches where you want them. Plenty of extra outlets to increase use of every Room, Basement, Porch, Attic, *etc.* Install Doorbells or Chimes, Burglar Alarms. Floodlight backyard for safety and outdoor parties. Save many dollars repairing Toasters, Washing Machines, Vacuum Cleaners, Fans, Motors, Pumps, Lamps, Irons, *etc.* All at big cash savings. Book explains electricity. All wiring instructions in accordance with National Electrical Code.

IMPROVEMENTS!

of these Great New Books!

Only $1.95 EACH After FREE Trial

SAVE $6.25 on Workbench. Easy to make — fun to work at!

SAVE $67.50 painting outside trim of small brick or shingle house.

Just one of many pictures showing how to do A-1 re-roofing job. Book has over 500 pictures, plans, etc.

Cover All Kinds of Inside and Outside Home Improvements!

Save Money on Repairs — Modernizing — Additions — Even New Building!

BASIC HOME CARPENTRY

All You Want to Know — From Making a Screen to Details of House Building!

Nothing pays the family man such high dividends as a sound working knowledge of "BASIC HOME CARPENTRY." And here it is from A to Z with 500 show-how pictures! Whether you want a Box or Wall Closet, a New Garage or an Extra Bedroom, here are all the basic "how-to" instructions, pictures and diagrams you need.

Learn about Woods, Veneers, Plywoods. Valuable tricks of the trade; all about tools. How to make various wood joints. How to frame House Walls, Floors, Roofs, Dormer Windows; set in Bridging and Wall Bracing. How to put on Sheathing, Siding, Insulation, Interior Wallboard. Learn the carpentry of Exterior and Interior Trim, Doors, Windows. How to Re-Shingle a Roof, Erect a Partition, Enclose Open Porch as Extra Room, Estimate Materials. *More!*

Learn how to sheathe cottage in 2 days.

Each Guaranteed to Save You $100.00!
If, after your week's FREE enjoyment of any book, you are not absolutely convinced it will save you at least $100.00, simply return book and owe nothing.

PAINTING, WALLPAPERING, DECORATING

Beautify Your Home Inside and Out — and SAVE up to 90c on the Dollar!

SAVE $35.00 giving Kitchen modern finish! SAVE $25.00 glamorizing Bath! SAVE $110.00 Papering 3 Bedrooms! Our experts estimate average family may save up to $1,039.00 on all their Painting, Papering, Weatherproofing and Refinishing over several years.

Book *tells* and *shows* how to Wallpaper like an expert, around corners, fixtures, etc. How to Thin and Mix Paints, Paint Wood, Metal, Brick, *etc.* Plaster, Putty, Glaze, Stencil in One or More Colors. Apply Stipple, Mottle, Grained Finishes. Refinish Floors and Woodwork. Learn High-Priced Decorator Secrets. Use of Color, Textures, Patterns. Styles of Furniture, Fabrics, Architecture. Money-saving Tricks.

SEND NO MONEY!

Yes, here are books to help you make all kinds of home improvements! Cut high cost of living! Have wonderful new comforts for pennies where others spend dollars! Know the joy of having your skill admired by all!

SEND NO MONEY! Make no decision now. Enjoy full week's FREE Trial of any book you like. Keep any book at the miracle low $1.95 only after your FREE Trial thoroughly proves it will help you save at least $100.00!

WM. H. WISE & CO., INC.,
50 West 47th St., New York 36, N. Y.

Mail this FREE-Trial Coupon NOW!

WM. H. WISE & CO., INC.,
50 West 47th St., New York 36, N. Y.

Without obligation, ship me prepaid for a week's FREE Trial the wonderfully helpful book or books I have checked at the right. After 7 days home enjoyment, for any book I keep I will remit only the miracle low $1.95, plus postage. If not delighted with any book I will return it and owe nothing for it.

When ordering more than one book, books may be paid for at rate of one a month.

Please Check Here:

- ☐ PAINTING, WALLPAPERING AND DECORATING B
- ☐ BASIC HOME CARPENTRY N
- ☐ HANDBOOK OF MASONRY AND WATERPROOFING D
- ☐ HOME PLUMBING E
- ☐ ELECTRICAL HANDYMAN C
- ☐ HOME FURNITURE BUILDER A

MR. / MRS. / MISS 801

(Please print in block letters)

ADDRESS .....

CITY ..... ZONE ..... STATE .....

America's Leading New-Idea Magazine for 81 Years

Founded 1872, Vol. 162: No. 1

POPULAR SCIENCE Monthly

REG. U.S. PAT. OFF.

Mechanics and Handicraft

REG. U.S. PAT. OFF.

VOLTA TORREY, EDITOR • Howard Allaway, MANAGING EDITOR
Howard C. Jensen, ART EDITOR • Frank Rowsome Jr., ASSISTANT MANAGING EDITOR

SENIOR EDITORS: Harry Walton (Mechanics & Handicraft), Hartley E. Howe (Features), Martin Mann (Copy).

ASSOCIATE EDITORS: Alden P. Armagnac, Henry B. Comstock, Devon Francis, Sheldon M. Gallager, Kendall W. Goodwyn, Wesley S. Griswold, Herbert O. Johansen, Herbert R. Pfister, Denis Sneigr, Robert P. Stevenson, Ruth Westphal, Andrew R. Boone (Los Angeles).

ART: Harry Samuels (Director), Herbert Anthony, Rolf O. Erickson, Eric Karminski Jr., Richard Meyer, Frances Cooper Daniels.

PHOTOGRAPHY: W. W. Morris (Director), Hubert Luckett, Orlando Guerra.

EDITORIAL ASSISTANTS: Harriet Trowbridge, Carol Ennis, Carol Schapiro, Georgette Sparks, Katharine W. Townsend, Jeanne Van Houten.

JANUARY, 1953

Here Come the New Cars

***This is the season** when the automobile makers show off their new models. Reports on more of the 1953 cars begin on page 110. Other cars have already been described in our November and December issues. For pictures and full details on those that will be announced during January, see* POPULAR SCIENCE MONTHLY *for February.*

The Mounties Become Mechanics..... 97
Radio Adds Third Dimension.....104
Wilbur Shaw Reports on the '53 Lincoln.....110
Why Don't We Lick the Common Cold?.....119
They Make Fortunes by Mail.....124
Living Off Another Planet.....132
Industry Clamors for Trained Men.....138
New Harpoon Electrocutes Whale.....146
Spanish Sports Car Hits 170 M.P.H.....161
Vermont Lights Way to Safety.....164
He Tames Avalanches.....168
Electric Ceiling Heats His Bathroom.....177
Expert Aligns Auto's Front End.....186
Gus Fixes Their Wagon.....194
All About Glues and Gluing.....199
Model Marine Engine Has No Castings.....214
How to Expose Flying Saucers.....226
Rabbeting on the Circular Saw.....232

(More features and departments are listed on page 4.)

Godfrey Hammond, PUBLISHER · Stephen P. Glennon, ADVERTISING DIRECTOR

ADVERTISING OFFICES: NEW YORK — 353 Fourth Ave.; CHICAGO—360 North Michigan Ave.; DETROIT—820 Book Bldg.; SAN FRANCISCO—681 Market St.; CLEVELAND—328 Citizens Bldg.; LOS ANGELES—2550 Beverly Blvd.
EDITORIAL OFFICES: 353 Fourth Avenue, New York 10, N.Y.

Published monthly at 353 Fourth Avenue, New York 10, N. Y., by Popular Science Publishing Co., Inc., Godfrey Hammond, President and Treasurer; R. C. Wilson, Stephen P. Glennon, Vice-Presidents; F. W. Briggs, Secretary. Entered as second-class matter Dec. 28, 1918, re-entered as second-class matter July 26, 1948, at the Post Office in New York, N. Y., under the act of March 3, 1879; additional entry as second-class matter at Dayton, Ohio. Entered as second-class matter at the Post Office Department, Canada. Printed in U.S.A. Copyright, 1952, by Popular Science Publishing Co., Inc. All rights reserved in the United States, Great Britain, and in all countries participating in the International Copyright Convention and Pan-American Copyright Convention. Yearly subscriptions to United States, its possessions and Canada, $3.00 (2 years, $5.50; 3 years, $7.50); foreign countries $1 per year extra. Four weeks' notice is needed to change a subscriber's address. Please give both old and new addresses, including postal zone numbers.

sure cure for oil thirsty engines!

Every working hour, U. S. mechanics replace worn piston rings in 4500 engines to stop oil pumping and restore horsepower. And an ever-increasing number of these overhauled engines will give outstanding performance because Perfect Circle's new 2-in-1 Chrome Piston Rings were installed.

Solid chrome plating on the oil and top compression rings eliminates tedious break-in periods—assures double life for cylinders, pistons and rings. Also, 2-in-1 is the only piston ring set containing NORMAL and HIPRESSURE springs to meet every condition of cylinder wear.

For positive oil control and sustained power for thousands of extra miles, insist on Perfect Circle's 2-in-1 Chrome Piston Rings in your engine.

Perfect Circle Corporation, Hagerstown, Ind.
The Perfect Circle Co., Ltd., Toronto, Ontario

Perfect Circle *2 in 1 chrome piston ring set*

THE STANDARD OF COMPARISON—recommended by the makers of America's finest automobiles

PERMATEX

FORM-A-GASKET®

SEALS

About Everything!

Used by auto manufacturers and mechanics everywhere!

Now take that cooling system for instance. Anti-freeze costs real dough...so why let it drip away through leaky hose connections and drain plugs. Seal them with Form-A-Gasket. It's sure because it resists all types of anti-freeze solutions as well as gas, oil, hot and cold water. *Keep Form-A-Gasket handy in your workshop as an all-purpose gasket and pipe-fitting compound.*

3 TYPES for your convenience

No. 1 sets quickly, dries hard. No. 2 sets slowly, is non-hardening. Aviation No. 3 is a brushable liquid that sets to a paste. All three make leakproof, pressure-tight seals in threaded, hose and flange connections.

Send for free illustrated catalog

PERMATEX COMPANY, INC.
Brooklyn 35, New York

News and Pictures

Kaiser Plans Plastic-Body Henry J.....109
Air Springs Give Bus a Bumpless Ride....123
Family Runs Own Railroad.....143
What's New on the Range.....144
This House Goes 50 M.P.H.....152
I've Ridden in a Flying Warehouse.....156
Mercedes Shatters Road-Race Record....172
Amphibian Has One Motor Per Wheel....174

Mechanics and Homebuilding

IF Your Oil Burner Stops.....182
Why Car Wheels Need Alignment.....190
How's Your Muffler?.....193
Modern Woodbox Has Lift-Out Sling....211
Craftsmen Put Electricity to Work.....219
One-Evening Projects.....222
Plywood Tiles Dress Up Dull Walls.....236
Check Your Soldering Know-How.....240
Hints for Model Railroaders.....241

Departments

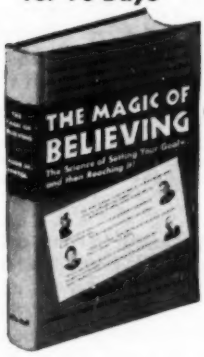
Letters 16
New Ideas from the Inventors.....129
I'd Like to See Them Make.....151
P.S. Last Minute News and Notes.....176
Hints from the Model Garage.....197
Keeping the Home Shipshape.....220
New Shop Ideas.....230
New Tools.....238

NEXT MONTH . . .

A Vacation Cabin for $200

Looking for a bargain? Then here's one you won't want to miss—a snug cabin for winter week ends or summer vacations—and the cost is only $200 plus a few week ends of work. Complete details on its simplified construction will be given in the next issue of POPULAR SCIENCE MONTHLY.

Start Using
FREE
for 10 Days



THE POWER THAT CAN GET YOU ANYTHING IN LIFE YOU WANT!

Whatever you want in 1953 — a new home, a happier marriage, a healthy state of mind and body, a better job, more money — here is a remarkable method for turning your desires into REALITIES:

THE MAGIC OF BELIEVING

(The Science of Setting Your Goal — and then Reaching It)

by Claude M. Bristol, writer, lawyer, lecturer

THIS unusual book shows you how to put your *inner mind* to work—how to utilize the power of your subconscious mind to help you overcome obstacles and *succeed in whatever you want to accomplish.*

Here is the secret of what women call intuition — religious leaders call revelation—gamblers call hunch —top executives call personal magnetism. "The Magic of Believing" shows you:

- **How you can win success by working *less* hard than you do now.**
- **How belief makes things happen.**
- **How to get what you want easily through a process of making mental pictures.**
- **How to use "the law of suggestion" to step up your effectiveness in everything you do.**
- **How to let your imagination find the ways and means of pushing obstacles aside for you.**
- **How to use proven techniques that focus your efforts and insure success.**
- **How to project your thoughts and turn them into achievements.**

Hard work alone will not bring success, Mr. Bristol shrewdly emphasizes. He shows you how you can harness the unlimited energies of your subconscious mind, and make use of it in *practical ways* to obtain the things you want and to become what you would like to be. Here are some of the common-sense pointers this book offers for getting the things you want:

1. **Don't reach for the moon. If you're earning $7,500 now and want more, begin by shooting for $10,000 or $15,000.**
2. **Sustained concentration is difficult, so use the 3 mechanical devices the book recommends to keep your subconscious constantly reminded of your goal.**
3. **Don't put off decisions. Make them for better or worse, and act on them.**
4. **Forget the past. Leave your subconscious free to deal with today's problems.**
5. **Steer clear of negative thinkers. Their pessimism will seep through to you in the same way your confidence communicates itself to others.**

You can put this powerful force to work for you at once. *In just 10 days you will begin to see how this remarkable method can change your entire life!* This is the "extra brain" that worked for Edison when he conceived the electric light while he slept; that plots the novels of famous novelists, like Louis Bromfield; that solves the problems of America's top executives. As it works for them, it can work for you! It will reveal to you what steps to take; what decisions to make; who to see; what to say; when and how. "The Magic of Believing" can enable YOU to turn ideas into riches; dreams into reality; failure into success.

Read this remarkable book 10 days free.

MAIL COUPON BELOW.

Here is Proof That "The Magic of Believing" Brings Practical Results!

"I got a job I have been wanting and trying to get over a year." —*D. M. Eade, Englewood, Calif.*

"Inspired my wife and self to enter local skill contest and win first prize of $1,500 mink cape—out of 21,000 contestants!" —*K. C. Stevener, Gardena, Calif.*

"An exceedingly practical analysis of the technique of mental power . . . a guidebook to success."—*Mrs. R. Bondurant, Portland, Ore.*

"It's a grand book . . . and promises to do an unlimited amount of good for all who read it."—*Ted Malone, noted radio artist.*

"This book is magic! Startling and instantaneous results seem to follow every chapter. Truly one of the best investments I have ever made."—*Mrs. J. F. Olsen, Duluth, Minn.*

Send coupon to get your free examination copy!

PRENTICE-HALL, Inc., Dept. M-PS-153
70 Fifth Avenue, New York 11, N. Y.

Without obligation, send me a copy of "THE MAGIC OF BELIEVING," by Claude M. Bristol, for 10 DAYS' FREE TRIAL. At the end of 10 days I will either return the book and owe nothing—or keep it and send only $1.00 plus a few pennies for postage and packing, and then $1.00 a month until the low price of only $3.95 is paid.

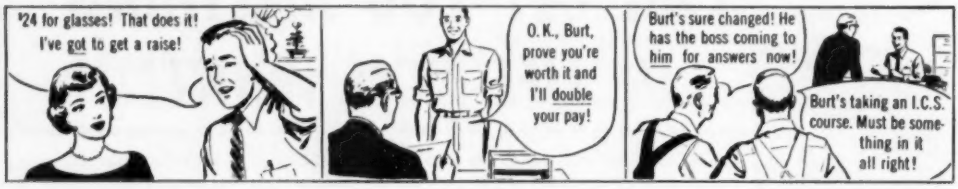
Name .....

Address .....

City ..... Zone ..... State .....

☐ **SAVE MONEY! *Send $3.95 with this coupon and we will pay shipping charges. Your money back if not completely satisfied.***

CRACK DOWN ON MONEY



You can have more money for things you need—a better job—bigger responsibility—congratulations and praise by letting I.C.S. train you to succeed instead of standing still

Do you find it tougher every month to come out even on your budget? Bills piling up? Never enough cash to go around? Everything going up but your income?

The way to get rid of those worries for good is to *make more money*. And you can do it!

Look around you. The men who are getting ahead are *trained* men. They've learned special skills that bring them higher pay. It's the men *without* training who are standing still.

What are you going to do about it? Just wait and hope for something better to come along? If you really *want to make good*, you can get the necessary training by learning at home in your spare time.

What I. C. S. Can Do for You—Help you qualify quicker for a better job, bigger pay. Give you new self-confidence. Save you time and expense. Help you master the essentials with no out-of-date or unnecessary material to study. Keep your employer informed of your progress (if you wish).

Why I.C.S. Is Best for You—I.C.S. offers 391 success-tested courses, 1559 different texts. I.C.S. texts are used by the U. S. Armed Forces Institute, Marine Corps Institute, Coast Guard Institute, as well as by colleges and universities. I.C.S. courses are used by 3327 businesses and industries to train employees. I.C.S. has spent six million dollars keeping texts up to date.

Advantages of I.C.S. Method—You earn while you learn—no time lost "going to school." You study in your spare time at work, at home or in between. You set your own pace—never hurried or held back by others. You study when convenient—no missed classes due to illness, business or social engagements. You get individual, *personalized* instruction, corresponding directly with your instructor.

Big I. C. S. Difference—I.C.S. gives you the bedrock facts and theory, plus practical application. You learn the why and the wherefore. No skimping. Instead of just becoming good, you become expert with an expert's knowledge of the fundamentals. This is the big difference between I.C.S. and other teaching methods.

Five Reasons for Mailing Coupon—(1) It brings you *two* free books by return mail. (2) It puts you in touch with the world's largest training school. (3) It proves to everyone (including yourself) that you are determined to make good. (4) It starts the pattern that has led thousands to richer, fuller lives. (5) It costs you absolutely nothing—nor are you obligated in any way.

FREE BOOKS

"How to Succeed." 36 pages packed with worth-while success tips. Step-by-step plan of action. Also training handbook on subject you check in coupon.

WORRIES!

International Correspondence Schools offer you a course in practically any field you choose, giving you the practical plus the bedrock facts and theory. You earn while you learn. Students report better jobs and more pay within a few months.

Look over the famous coupon below. Pick out the career that interests you—one that can lead you to an interesting, rewarding future. Then mark the coupon and mail it.

I. C. S. will send you *two free books*—a training handbook complete with information about the field you check (outlook, qualifications, how to enter, etc.)—also the 36-page guide to rapid advancement, "How to Succeed." Find out what I. C. S. can do for *you!*

Man or woman—young or old—whether you make $20,000 or $2000 a year—*I. C. S. can help you!* Start the new year right. Mail the coupon today.

READ WHAT AVERAGE STUDENTS SAY ABOUT I. C. S.—

"Thanks to I.C.S., I've been able to increase my income 230%."

"I was making $65 a week when I enrolled. Now making over $100."

"I.C.S. course in Mechanical Drafting made it possible for me to get a better job at twice my former pay."

"If it weren't for I.C.S., I'd still be back in the $75 a week class."

"I consider my enrollment with I.C.S. the most important step in my career."

INTERNATIONAL CORRESPONDENCE SCHOOLS ICS

BOX 7623-N, SCRANTON 9, PENNA.

Without cost or obligation, send me "HOW to SUCCEED" and the booklet about the course BEFORE which I have marked X:

ART
- ☐ Commercial Art
- ☐ Magazine and Book Illustrating
- ☐ Cartooning
- ☐ Show Card and Sign Lettering
- ☐ Fashion Illustrating

AUTOMOTIVE
- ☐ Automobile, Mechanic
- ☐ Auto-Elec. Technician
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Diesel—Gas Engines

AVIATION
- ☐ Aeronautical Engineering Jr.
- ☐ Aircraft Engine Mechanic
- ☐ Airplane Drafting

BUILDING
- ☐ Architecture
- ☐ Arch. Drafting
- ☐ Building Contractor
- ☐ Estimating
- ☐ Carpenter and Mill Work
- ☐ Carpenter Foreman
- ☐ Reading Blueprints
- ☐ House Planning
- ☐ Plumbing
- ☐ Heating
- ☐ Steam Fitting
- ☐ Air Conditioning
- ☐ Electrician

BUSINESS
- ☐ Business Administration
- ☐ Certified Public Accountant
- ☐ Accounting
- ☐ Bookkeeping
- ☐ Stenography and Typing
- ☐ Secretarial
- ☐ Federal Tax
- ☐ Business Correspondence
- ☐ Personnel and Labor Relations
- ☐ Advertising
- ☐ Retail Business Management
- ☐ Managing Small Business
- ☐ Sales Management
- ☐ Salesmanship
- ☐ Traffic Management

CHEMISTRY
- ☐ Chemical Engineering
- ☐ Chemistry
- ☐ Analytical Chemistry
- ☐ Petroleum—Nat'l Gas
- ☐ Pulp and Paper Making
- ☐ Plastics

CIVIL, STRUCTURAL ENGINEERING
- ☐ Civil Engineering
- ☐ Structural Engineering
- ☐ Surveying and Mapping
- ☐ Structural Drafting
- ☐ Highway Engineering
- ☐ Reading Blueprints
- ☐ Concrete Construction
- ☐ Sanitary Engineering

DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Structural Drafting
- ☐ Sheet Metal Drafting
- ☐ Mine Surveying and Drafting

ELECTRICAL
- ☐ Electrical Engineering
- ☐ Electrician
- ☐ Electrical Maintenance
- ☐ Electrical Drafting
- ☐ Electric Power and Light
- ☐ Lineman

HIGH SCHOOL
- ☐ High School Subjects
- ☐ College Preparatory
- ☐ Mathematics
- ☐ Commercial
- ☐ Good English

MECHANICAL AND SHOP
- ☐ Mechanical Engineering
- ☐ Industrial Engineering
- ☐ Industrial Supervision
- ☐ Foremanship
- ☐ Mechanical Drafting
- ☐ Machine Design-Drafting
- ☐ Machine Shop Practice
- ☐ Tool Design
- ☐ Industrial Instrumentation
- ☐ Machine Shop Inspection
- ☐ Reading Blueprints
- ☐ Toolmaking
- ☐ Gas—Electric Welding
- ☐ Heat Treatment—Metallurgy
- ☐ Sheet Metal Work
- ☐ Sheet Metal Pattern Drafting
- ☐ Refrigeration

POWER
- ☐ Combustion Engineering
- ☐ Diesel—Electric
- ☐ Electric Light and Power
- ☐ Stationary Steam Engineering
- ☐ Stationary Fireman

RADIO, TELEVISION, COMMUNICATIONS
- ☐ General Radio
- ☐ Radio Operation
- ☐ Radio Servicing—FM
- ☐ Television
- ☐ Electronics
- ☐ Telephone Work

RAILROAD
- ☐ Locomotive Engineer
- ☐ Diesel Locomotive
- ☐ Air Brakes ☐ Car Inspector
- ☐ Railroad Administration

TEXTILE
- ☐ Textile Engineering
- ☐ Cotton Manufacture
- ☐ Rayon Manufacture
- ☐ Woolen Manufacture
- ☐ Loom Fixing
- ☐ Finishing and Dyeing
- ☐ Textile Designing

HOME ARTS
- ☐ Dressmaking and Designing
- ☐ Cookery
- ☐ Tea Room Management

Name_____ Age_____ Home Address_____

City_____ State_____ Working Hours_____ A.M. to_____ P.M.

Occupation_____

Special tuition rates to members of the Armed Forces. Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada

CAR OWNERS - SAVE UP TO $275.00 A YEAR!

get 37-49 miles PER GALLON FROM ANY CAR

WORLD FAMOUS SPEED CHAMPS & AUTO ENGINEERS TELL HOW:

- TO GO 15,000 MILES WITHOUT OIL CHANGE
- GET 30 M.P.H. MORE TOP CAR SPEED
- GET 10,000 MORE MILES FROM YOUR TIRES

ALL MAKES! ALL MODELS! ALL YEARS!

HERE IT IS! THE NEWHOUSE 1953 SPEED, POWER AND ECONOMY MANUAL! The most authentic, complete and **fully illustrated** book of its type ever published is now available to all motorists! See for yourself the quick, easy, step-by-step photo illustrations that reveal the most amazing speed, power and economy secrets of the Century. Learn how to overhaul your engine in 1 hour . . . get as much as 3-5 more miles per gallon with the twist of a screwdriver . . . restyle your car to get an expensive "sports car" look. Cut engine friction and wear by more than 66⅔ with Auto-Moly—new MOLYBDENUM additive to get high mileage . . . faster starts and increased speed and power! Save **hundreds of dollars** on gas, oil, auto repairs and economy products!

Photos and Diagrams Show Easy Step by Step Methods

This sensational new book with its FOOL-PROOF, easy-to-follow instructions is the same as having the nation's best qualified experts actually show you how! Detailed drawings and cutaway diagrams make every step along the way so simple that anyone can understand—even if you've never held a screwdriver! Learn how to resurface cylinder walls and seal in compression without removing one part from your engine . . . Learn how to automatically flush gum, carbon and other combustion residue out your exhaust pipe . . . Get special methods for obtaining "high test" performance from regular gas . . . Stop engine overheating and oil cartridge replacement for a lifetime. This book contains hundreds of money saving hints and "how to do it" instructions such as how to convert a "jalopy" into a sleek "speedster" with push-button windows and doors, custom grillwork, plastic top at only a few dollars total cost . . . How to save $300 when selling your used car.

The True Story on Where Your Gas Goes!

At last, the facts are revealed for all to see. Learn how, with the twist of your wrist and with the use of easy-to-get products, you can GREATLY INCREASE THE PRESENT MILEAGE AND POWER OF YOUR CAR. Learn why 80 cents of every gas dollar you spend doesn't move your car one inch. Learn how you can easily and quickly release the shackled horsepower in your engine and stop draining 20% of the power potential out your exhaust . . . dissipating 30% on operation of your ignition, oil and water systems. The Newhouse Book reveals for the first time the **tested proven** methods and techniques that answers the "gas poor" motorists' every problem.

Newhouse Automotive Industries, Dept. PSB-1, San Gabriel, California

10 DAY FREE TRIAL AT OUR EXPENSE!

MAIL COUPON TODAY Special Offer Gives You 4 Books For The Price Of One. Three valuable handbooks described below (Reg. $1.75 value) are yours to keep. If you don't agree that the SPEED & POWER MANUAL, the 3 gift handbooks and discount benefits are the best $1.98 value you've ever seen return Speed & Power Book for full refund, no questions asked.

$1.98

SEND NO MONEY *Mail Free Gift Coupon Today!*

Only This Great Book Reveals All the Facts!

Authentic mileage speed and power information right from the roads, tracks and speed shops of Southern California . . . the auto proving grounds of the nation. INCLUDES: 1000 Economy secrets, Tuning techniques, Racing power secrets, Hi-speed fuel formulas, Compression restoratives, Motor "engine tonic" treatments, Eliminate carburetor flooding, and end forever unnecessary fuel waste. Make Dual Ignition Systems. Learn easy ways to higher horsepower . . . To 10,000 additional tire miles. LATEST INFORMATION ON CARE, REPLACEMENT OR REPAIR OF: Fuel pumps—ignition and electrical systems—starter — battery — generator — tires — brakes—cooling systems—directional signals—transmissions—rear ends—carburetor—bearings—speedometer — steering and many, many more!

STOP PAYING FOR SUCKER AUTO REPAIRS . . . Learn how to "fix it yourself" and save at least $100 this year alone. Learn how to determine FAIR repair charges as well as do your own work . . . fix your leaky radiator and save $15 . . . "bump out" fender dents and save up to $35 . . . repair a cracked cylinder without removing the engine from your car.

WRITE TODAY!

Mail coupon **now** . . . special offer gives you 4 books for the price of 1 . . . 3 gift handbooks and discount benefits are the best $1.98 value you've ever seen. . . . Return Speed & Power Book for full refund within 10 days, but **Keep** extra GIFT Books!

FREE CLUB MEMBERSHIP

GANE ECONOMY CLUB

LOOK! 220 PAGES 500 PHOTOS AND DRAWINGS (combined)

To Book Purchasers

SEND YOUR BOOK ORDER TODAY and receive your Life Membership in the great Gane Economy Club. Enclosed with your books will be your **Free** gas coupons . . . **Free** credit checks . . . **Free** money saving coupons and **Free** trial & premium offers. Other benefits enjoyed by present ½ million members include a **Free** subscription to the Club Newspaper . . . **Free** catalogs showing merchandise which club members can "Buy Without Money." Members have saved many hundreds of dollars through club benefits and privileges.

ORDER YOUR SPEED AND POWER MANUAL TODAY . . . AND RECEIVE YOUR "LIFE MEMBERSHIP CARD" PLUS GIFT & FREE OFFER CERTIFICATES AT ONCE!

3 BOOKS FREE!

These $1.75 value books are yours to keep even if you return the big Speed & Power Book.

1. ECONOMY DRIVING MANUAL . . . 48 pages of selected economy hints and info. on top auto economy products. (Reg. 50c value.)
2. HIGH PERFORMANCE EQUIPMENT MANUAL . . . pictures & lists 1,000 tested power, speed and economy parts and accessories. (Reg. 25c value.)
3. FAMOUS "How BOOK" . . . reveals for the first time the secret of how some drivers can and do get up to 150 m.p.h. (Reg. $1 value.)

SEND NO MONEY! MAIL FREE GIFT Coupon Now!

NEWHOUSE AUTOMOTIVE, Dept. PSB-1
San Gabriel, California

Rush me the Newhouse SPEED, POWER & ECONOMY HANDBOOK for NO RISK EXAMINATION. I agree to pay postman on arrival $1.98 plus postage. If not completely satisfied I will return it within 10 days for a full refund.

Also send me ABSOLUTELY FREE the 3 handbooks: "Economy in Driving," "High Performance Equipment" and the "Famous 'How' Booklet." These I will keep as a FREE GIFT even if I return the big Newhouse Handbook. Also, don't forget to include my Economy Club Membership and FREE gift certificates.

Name.....
(Please print in pencil)

Address.....

City.....Zone....State.....

SAVE MORE! If you send $1.98 with coupon, we pay all postage charges. Same money-back guarantee.

5 *reasons why* ACCOUNTANCY

offers you MORE MONEY . . . *and* SUCCESS!

REASON #1. If you were an expert accountant right now, chances are you would find yourself among the highest-paid of all professional men and women. Even back in "depression years," surveys showed that accountants earned more on the average than men in other major professions.

REASON #2. The demand for accountants is great—everywhere. All businesses must have trained accountants to cope with ever-growing requirements. It's a profession offering wide opportunity—always—to the man who knows.

REASON #3. You can fit into any business, anywhere in the country—because accounting principles are universal. Think what this means in terms of security and independence!

REASON #4. Accountancy is open to all. Any man or woman of good intelligence, who enjoys figure work and is willing to follow LaSalle's systematic "problem method" plan, can rapidly qualify for a highly profitable, enjoyable lifetime career . . . and he doesn't have to finish his training before beginning to "cash in."

REASON #5. Without losing a day from your present work, you can prepare in spare hours at home, at low cost, under LaSalle's step-by-step "Problem Method" of "learning by doing." This famous plan accounts for LaSalle's remarkable record of having trained nearly 10 per cent of all Certified Public Accountants in the U. S. . . . and of having put many thousands of others into high-paying careers.

Send today for LaSalle's interesting booklets, "Accountancy, the Profession That Pays," and "Success Reports." Learn about the five great fields of opportunity . . . and LaSalle's time-tested plan for helping men and women to rapid advancement, higher income, greater prestige and professional standing. The coupon below will bring these fact-filled booklets to you—without cost or obligation—also, a free sample lesson showing LaSalle's famous "Problem Method" plan of instruction.

LASALLE
417 S. Dearborn St.,
CHICAGO 5, ILL.

GET FREE SAMPLE LESSON

WHICH . . . ?
can help you most

- ☐ Accounting—Elements to C.P.A. Coaching
- ☐ Bookkeeping
- ☐ Cost Accounting
- ☐ Auditing
- ☐ Income Tax
- ☐ C.P.A. Coaching

LaSalle Extension University
A Correspondence Institution
Dept. 183-HR 417 S. Dearborn St., Chicago 5, Ill.

Please send me, free of all cost or obligation, a sample lesson in Accounting . . . also, your 48-page illustrated books, "Accountancy, the Profession that Pays," and "Success Reports."

Name.....*Age*.....

Address.....

City, Zone, State.....

SENSATIONAL BARGAINS FOR ALL

ON MONEY-BACK GUARANTEE

YOU CAN OWN THESE TOOLS for as little as ONLY $1 A WEEK

Famous Brand Cummins

DRILL-SAW KIT... Over 40 Pcs.

$39.95 value . . . what savings! Here's what you get: Cummins ¼" Pistol-Grip Electric Drill; Saw Attachment and 4" Blade; Bench Stand; Handy Carrying Case; Hand-Tite Chuck; 18 Sanding Discs; 12 Carbon Twist Drills; Grinding Wheel; Sanding Disc Pattern; Lambs Wool Bonnet; Rubber Packing Pad; Paint Mixer; Arbor Set. Guaranteed by the manufacturer and us. Included at no extra cost—9 additional Assorted Drills.

($3 down, $1.50 weekly) **$26.95**

Save Hundreds of Dollars with this

ALL-METAL ELECTRIC

SPRAY GUN

The Champion costs no more than a set of good paint brushes, but its superior finished work cannot be told from the high-costing professional job. Hundreds of tough tasks are made easy. Use this All-Metal Spray Gun (no plastic in Champion) for spraying paints, including rubber-base paints—lacquers, enamels, varnishes, chemicals, oil, insecticides, deodorants, shellacs; for waxing, rustproofing, waterproofing. Gun-like holder and trigger for complete control—press the trigger, you're doing the job evenly, cleanly and easily. Built for heavy duty. AC current. 8-ft. UL extension cord, 25 oz. Flint Glass Jar, and 5 extra nozzle discs. Guaranteed by Champion and us. Included at no extra cost—232 pg. "Home Fixit Guide". **$3 down, $1 weekly.** **$12.95**

New 1953 Improved

ELECTRIC

JIG SAW

With Powerful Built-in Motor

Saws Wood, Metal, Plastics, etc. Big arm capacity, saws to center of full 16" circle. 110-125 Volt built-in motor delivers 3400 RPM. Built-in cooling fan and air vents keep motor cool. Portable, use this entirely new, greatly improved Burgess Jig Saw anywhere . . . just plug in and saw with 100% safety! All-metal construction, rubber-cushioned base. Now you can make hundreds of useful things for your home, den, workshop, garden. With this New Burgess Jig Saw you can make them faster, better and easier than you ever thought possible. Guaranteed by Burgess and us. Included at no extra cost—22 FULL-SIZE Project Patterns and 3 extra blades. **($3 down, $1 weekly)** **$12.95**

"Mr. Blister"—New Electric

PAINT REMOVER

Removes paint, wallpaper, putty from flat, curved, or irregular surfaces indoors and out. Safe—no open flame! "Mr. Blister" operates faster and easier than any other electric paint remover. No pressure required. Merely slide unit over area to be scraped. Heat quickly penetrates, causes paint to soften and blister so it scrapes off easily. Softens all the paint the first time—20 sq. inches with one slide! Easy to use in hard-to-get-at places. Also for laying linoleum and asphalt tile. Sturdy metal case assures long, trouble-free life. For AC and DC current. 1-year guarantee against defective workmanship or material. Included at no extra cost—232 pg. "Home Fixit Guide." **($2 down, $1 weekly)** **$10.95**

WALDORF SALES CO.
363 Central Pk. Ave., Yonkers, N. Y.

Write to Dept.PS-201

10-DAY FREE HOME-TRIAL COUPON

Waldorf Sales Co., Dept. PS-201
363 Central Park Ave., Yonkers, N. Y.

Please ship item(s) checked below. Method of payment is checked, too.

- ☐ **Drill-Saw Kit, $26.95**
- ☐ **Jig Saw, $12.95**
- ☐ **Spray Gun, $12.95**
- ☐ **Paint Remover, $10.95**
- ☐ **Full payment enclosed, you pay postage.**
- ☐ **Ship C.O.D. plus postage.**

☐ **Enclosed is $** ..... **down payment as required. On delivery will start weekly payments (small service charge—none if balance is paid in 30 days). 10-Day Money-Back Guarantee anyway I order.**

Name.....

Address.....

City.....**State**.....

DOES YOUR TV SET HAVE TO COST YOU FROM $25—$90 A YEAR FOR REPAIRS?

Not if you know a few simple things about your television set . . . not if you know when you really need a serviceman . . . and when your trouble can be corrected with a minor, simple, safe adjustment you can make yourself . . .

You've seen a serviceman come in to work on your set. He taps this and twists that. Then he either replaces a tube, or makes an adjustment on a part. All he has to do is recognize and locate the trouble, and then make the correction.

You don't have to be a mechanical genius to be able to make many of these same adjustments on your set yourself. If you have ever put a new washer on your water faucet, or changed a tire on your automobile, or attached a new plug to an electric cord—you have enough "mechanical background" to be able to take care of all "nuisance repairs" yourself, and probably of most other things that go wrong with a set.

Amazing New TV Owner's Self Repair Book Takes the Mystery Out of TV Repairs

With the amazing new TV Owner's Self Repair Book, you can have a television expert at your side whenever you need it. Now, every time your set begins to flicker or jump, or becomes distorted or dissolved into lines or zags—a flick of the finger to the right page **SHOWS YOU EXACTLY WHAT CONTROL** knob to turn to correct the trouble in less than one minute! From now on, every time you're annoyed by "ghosts," snow or weak channel reception—the TV Owner's Self Repair Book shows you how to effect a quick 15-minute repair job that eliminates these faults and restores the set to perfect, movie-clear reception.

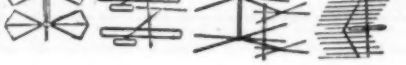
IT HAS BEEN PROVEN THAT 1 OUT OF EVERY 3 TV FAULTS IS CAUSED BY A WEAK OR BURNT OUT TUBE. Just by replacing a tube you can correct fully 33⅓% of the troubles that may develop in a set. The TV Owner's Self Repair Book shows you how to safely locate and change the bad tube in less than 5 minutes.

Contains special tube diagrams that spot faulty tubes immediately . . . a complete section on antennas . . . interference . . . covers T.V. set models from 1947-1952 . . . all makes . . . all sizes.

When you check your trouble and find that it is due to a faulty tube, you are led right to it. You simply find the diagram for your set and the one (or more) tubes you are to check—and **THE ONE TO REPLACE** are pinpointed for you! You are directed right to it. No blind guessing or hunting for the bad tube. **ONLY IN THIS BOOK**, has there been developed a special identification method to make it a cinch to locate the bad tube. Each tube in each diagram not only carries its usual trade identification number, but also a special letter to identify its function and location as well. It's (1) find the trouble, (2) find the tube, bingo, (3) replace the tube—and that's all there is to it!

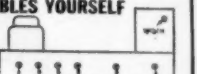
Which Type of Antenna Is Best for Your Set

The special chapter on antennas explains what an antenna is supposed to do; the reason for the different shapes and arrangements; the reason for "stacking" and multiple antennas; how to "orient" an antenna for best reception; the need and use of a "rotator"; the special antennas for "fringe" areas; how to install, change or add antennas and parts; information on complete antenna installation kits which are available. Just about everything practical that you need to know about antennas.



Do This Right Now and Prove You Can FIX TV TROUBLES YOURSELF

Turn your set around. You will find in the back of it an arrangement of "rear controls" looking like this:



Zags on Your Screen

Now, if you are troubled with these zags on your screen, locate Hor. Syn. on the above rear panel. Turn control slowly to left. Zags will disappear and you will have a perfect picture on your screen. That's all there is to it. You have made a $5 repair in less than 5 minutes.

A few other repairs that you can make yourself without tools, without any special knowledge, just with the help of this new TV Owner's Self Repair Book.

6 Easy Ways to Eliminate Interference

In the TV Owner's Self Repair Book there is a unique chapter devoted just to elimination of interference. This chapter tells you just what "interference" actually is. It describes and illustrates the interference symptoms or patterns which appear on your screen in the form of diagonal lines, vertical lines, herringbone or hyphens all over the screen, etc. **This chapter gives you the easy ways to eliminate interference, doing it yourself in a few minutes.**

Complete Price Lists of All Tubes

The TV Owner's Self Repair Book contains a full listing of every tube used in TV sets, fully identified with number, and also listing of picture tubes and with the fair retail prices (by the way, prices range from $1.10 for a 5YEGT tube to $6.60 for a 6CDG tube and up to $101.00 for a 24 inch picture tube, 24BF4). A full listing, also, of standard and reasonable charges for every type of television service and repair job. No longer need you be in the dark when it comes to knowing what a job should cost. Now you can make your own minor repairs and in addition know just how expensive "Expensive" repairs should really be.

A Practical Reference Book & Reading Course Combined in One Big Volume... for Only

An Amazing Bargain. Actual Size 6 x 9 Inches, 160 Pages, Over 300 Illustrations And How To Do It Pictures

$1.98

Never Before Such a Complete Authoritative Book for So Little Money!

It contains chapters devoted to GETTING ACQUAINTED WITH YOUR TV SET, telling you how the set is put together, how to understand the controls, how to operate the set, why a "test" pattern is needed—and HOW A TV SET WORKS, telling you how pictures and sound are broadcast and received. Included in the broad scope of this book, is complete information on HOW TO DIAGNOSE TROUBLES IN YOUR TV SET, telling you how to spot faults due to poor adjustment, faults due to wear and breakdown of tubes and parts, faults due to outside causes including extreme distance from telecasting center; also HOW TO CURE YOUR TROUBLES IN THE SET, telling you with pictures and descriptions just how to go about replacing tubes, parts, HOW TO MAKE VARIOUS ADJUSTMENTS and how to do all this without the slightest danger to yourself or to your set! There is also a special chapter devoted to television accessories, such as boosters, what they do, Interference, Traps, Glare Filters, Antenna Couplers, which means a master antenna system which permits the operation of two sets from a single antenna, and much, much more.

Unconditional Money Back Guarantee!

Let us send you a copy of this TV Owner's Self Repair Book. Look at it, go through it, read the general information it offers on how a TV set works. Use it to adjust the controls on your set to 100% perfection. Use it, above all, in making your next "fix-it" job on your set. Then—if you don't think that it is the best book of its kind on the market, that it will save you up to a possible $200 on repairs and adjustments on your set during its life, return it to us. We'll promptly send your money back. You must be satisfied 100% or it costs you nothing to examine and try the book—in your home on your set. What could be fairer? But send for the book now and enjoy the best television reception from your set right away!

SEND NO MONEY unless you wish

HOMECRAFTS, DEPT. 754
799 Broadway, New York 3, N. Y.

Please send me the TV OWNER'S SELF REPAIR BOOK immediately. I agree to pay postman on arrival $1.98 plus C.O.D. postage. If the book does not help me get a clearer, sharper, better defined picture than I am now getting—if the book doesn't make it possible for me to fix or repair my own set, if I am not 100% satisfied, I may return the book for my full money back!

NAME.....
(Please print plainly)

ADDRESS.....

CITY & ZONE.....STATE.....

☐ SAVE MORE! If you enclose $2 cash, check, or money order with this coupon, we pay all postage charges. Same unconditional money back guarantee!

An Amazing Invention—"Magic Art Reproducer"

DRAW The First Day

NO LESSONS! NO TALENT!

Anyone can Draw With This Amazing New Invention—Instantly!

You Can Draw Your Family, Friends, Anything From REAL LIFE—Like An Artist... Even if You CAN'T DRAW A Straight Line!

De Luxe Model Complete for only

$1.98

—With extra high power, extra clear and sharp "reproducer" unit.

A New Hobby Gives You A Brand New Interest!

Yes, anyone from 5 to 80 can draw or sketch or paint anything now... the very first time you use the "Magic Art Reproducer" like a professional artist—no matter how "hopeless" you think you are! An unlimited variety and amount of drawings can be made. Art is admired and respected by everyone. Most hobbies are expensive, but drawing costs very little, just some inexpensive paper, pencils, crayons, or paint. No costly upkeep, nothing to wear out, no parts to replace. It automatically reproduces anything you want to draw on any sheet of paper. Then easily and quickly follow the lines of the "picture image" with your pencil ... and you have an accurate original drawing that anyone would think an artist had done. No guesswork, no judging sizes and shapes! Reproduces black and white and actual colors for paintings.

Also makes drawing larger or smaller as you wish.

Anyone can use it on any desk, table, board, etc.—indoors or outdoors! Light and compact to be taken wherever you wish. No other lessons or practice or talent needed! You'll be proud to frame your original drawings for a more distinctive touch to your home. Give them to friends as gifts that are "different," appreciated.

Have fun! Be popular! Everyone will ask you to draw them. You'll be in demand! After a short time, you may find you can draw well without the "Magic Art Reproducer" because you have developed a "knack" and feeling artists have—which may lead to a good paying art career.

ALSO EXCELLENT FOR EVERY OTHER TYPE OF DRAWING AND HOBBY!

Create Your Own Design for All Hobbies! Reproduce on anything.

Copy all cartoons, ...comics.

Outdoor Scenes, landscapes, buildings

Copy photos, portraits of family, friends, etc.

Still life, vases, bowls of fruit, lamps, furniture, all objects.

Copy blueprints, plans.

FREE!

"How to Easily Draw Artists' Models"

This valuable illustrated guide is yours free with order of "Magic Art Reproducer." Packed with pictures showing all the basic poses of artists' models with simple instruction for beginners of art. Includes guidance on anatomy, techniques and figure action.

SEND NO MONEY!

Free 10-Day Trial!

Just send name and address. Pay postman on delivery $1.98 plus postage. Or send only $1.98 with order and we pay postage. You must be convinced that you can draw anything like an artist, or return merchandise after 10-day trial and your money will be refunded.

NORTON PRODUCTS Dept. 4401B, 296 Broadway New York 7, N.Y.

FREE 10-DAY TRIAL COUPON

NORTON PRODUCTS, Dept. 4401B
296 Broadway, New York 7, N. Y.

Rush my "Magic Art Reproducer" plus FREE illustrated guide "*How to Easily Draw Artists' Models.*" I will pay postman on delivery only $1.98 plus postage. I must be convinced that I can draw anything like an artist, or I can return merchandise after 10-day trial and get my money back.

Name _____

Address _____

City & Zone _____ State _____

☐ Check here if you wish to save postage by sending only $1.98 with coupon. Same Money Back Guarantee!

AUDELS TV SERVICE

TELLS HOW TO SOLVE TV TROUBLES AND ANSWERS TV QUESTIONS

Just Out!

HERE IS PRACTICAL T.V. INFORMATION THAT PAYS FOR ITSELF! Shows How to Get Good receiver adjustment and How to Get Sharp, Clear Pictures, How to Install Aerials—Avoid Blurs, Smears, Interference and How to Test. Explains Color Systems and Methods of Conversion.

1001 FACTS—19 CHAPTERS

Over 380 PAGES — 225 Illustrations & Diagrams shows operating principles of Modern T.V. Receivers.

$2 POST PAID

Get this practical assistance for yourself
7 DAYS FREE TRIAL

MAIL ORDER TODAY

AUDEL, Publishers, 49 W. 23rd St., New York 10, N. Y.

Mail me postpaid for 7 days' examination "AUDELS TELEVISION SERVICE MANUAL"—Price $2. If O.K. I will mail you $2; otherwise I will return book.

Name _____

Address _____

Employed by _____ 52

AUDELS Carpenters and Builders Guides 4 vols. $6

Inside Trade Information Out

Inside Trade Information for Carpenters, Builders, Joiners, Building Mechanics and all Woodworkers. These Guides give you the short-cut instructions that you want—including new methods, ideas, solutions, plans, systems and money saving suggestions. An easy progressive course for the apprentice and student. A practical daily helper and Quick Reference for the master worker. Carpenters everywhere are using these Guides as a Helping Hand to Easier Work, Better Work and Better Pay. To get this assistance for yourself, simply sign in and mail the FREE COUPON below.

How to use the steel square—How to file and set saws—How to build furniture—How to use a miter box—How to use the chalk line—How to use rules and scales—How to make joints—Carpenters arithmetic—Solving mensuration problems—Estimating strength of timbers—How to set girders and sills—How to frame houses and roofs—How to estimate costs—How to build houses, barns, garages, bungalows, etc.—How to read and draw plans—Drawing up specifications—How to excavate—How to use settings 12, 13 and 17 on the steel square—How to build hoists and scaffolds—skylights—How to build stairs—How to put on interior trim—How to hang doors—How to lath—lay floors—How to paint.

AUDEL, Publishers, 49 W. 23rd St., New York 10, N. Y

Mail Audels Carpenters and Builders Guides, 4 vols., on 7 days free trial. If OK I will remit $1 in 7 days and $1 monthly until $6 is paid. Otherwise I will return them. No obligation unless I am satisfied.

Name _____

Address _____

Occupation _____

Employed by _____ 51

WHAT ALL AUTO MECHANICS WANT TO KNOW

1800 PAGES

This Big Practical Book gives full information with working diagrams covering the principles, construction, ignition, service and repair of modern cars, trucks and buses.

Diesel Engines, Hydramatic & Fluid Drives Fully Explained.

A complete Guide of 1800 pages, with over 1500 illustrations showing inside views of working parts, with instructions for service jobs.

IT PAYS TO KNOW

How to fit pistons—How to locate engine knocks, How to fit connecting rod bearings—How to service main bearings—How to recondition valves—How to time valves—How to adjust fan belts—How to adjust carburetors and chokes, How to rebuild a clutch—How to service automatic transmissions—How to service brakes—How to adjust steering gear—How to cope with ignition troubles—How to service distributors—How to time ignition—How to "tune up" an engine.

$4 COMPLETE • PAY $1 A MO.

TO GET THIS ASSISTANCE FOR YOURSELF SIMPLY FILL IN AND MAIL COUPON TODAY.

Step up your own skill with the facts and figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in a Handy Form. Fully illustrated and Easy to Understand. Highly Endorsed. Check the book you want for 7 DAYS FREE EXAMINATION. Send No Money. Nothing to pay postman.

MAIL ORDER

AUDEL, Publishers, 49 W. 23 St., NEW YORK 10, N. Y.

Please send me postpaid for FREE EXAMINATION books marked (x) below. If I decide to keep them I agree to mail $1 in 7 Days on each book or set ordered and further mail $1 monthly on each book or set until I have paid price, otherwise I will return them.

Check NOW!

You Can Look Over Any Guide In Your Own Home

Start the Easy Payments If Satisfied

MAIL THIS TODAY

- ☐ AUTOMOBILE MECHANICS GUIDE, 1800 Pages $ 4
- ☐ TRUCK & TRACTOR GUIDE, 1299 Pages . . . 4
- ☐ DIESEL ENGINE MANUAL, 575 Pages . . . 2
- ☐ MACHINISTS HANDY BOOK, 1650 Pages . . . 4
- ☐ WELDERS GUIDE, 400 Pages . . . 1
- ☐ BLUE PRINT READING, 416 Pages . . . 2
- ☐ MATHEMATICS & CALCULATIONS, 700 Pages . 2
- ☐ SHEET METAL PATTERN LAYOUTS, 1100 Pages 4
- ☐ SHEET METAL WORKERS HANDY BOOK, 388 Pgs. 1
- ☐ MECHANICAL DRAWING GUIDE, 160 Pages . . 1
- ☐ MECHANICAL DRAWING & DESIGN 480 Pages 2
- ☐ AIRCRAFT WORKER, 240 Pages . . . 1
- ☐ TELEVISION SERVICE MANUAL, 384 Pages . . 2
- ☐ RADIOMANS GUIDE, 914 Pages . . . 4
- ☐ ELECTRONIC DEVICES, 216 Pages . . . 2
- ☐ ELECTRIC MOTOR GUIDE, 1000 Pages . . . 4
- ☐ ELECTRIC WIRING DIAGRAMS, 272 Pages . . 1
- ☐ ELECTRICIANS EXAMINATIONS, 250 Pages . . 1
- ☐ ELECTRIC POWER CALCULATIONS, 425 Pages . 2
- ☐ HANDY BOOK OF ELECTRICITY, 1440 Pages . . 4
- ☐ ELECTRIC DICTIONARY, 9000 Terms . . . 2
- ☐ ELECTRIC LIBRARY, 7000 Pages (12 Book Set) 18
- ☐ MARINE ENGINEERS HANDY BOOK, 1258 Pgs. 4
- ☐ SHIPFITTERS HANDY BOOK, 250 Pages . . . 1
- ☐ REFRIGERATION & Air Conditioning, 1280 Pgs. 4
- ☐ MILLWRIGHTS & MECHANICS GUIDE, 1200 Pgs. 4
- ☐ POWER PLANT ENGINEERS GUIDE, 1500 Pages 4
- ☐ ENGINEERS & FIREMANS EXAMS, 525 Pages . 1
- ☐ PUMPS, Hydraulics & Air Compressors, 1658 Pgs. 4
- ☐ ENGINEERS LIBRARY (3 Book Set) . . . 9
- ☐ MECHANICAL DICTIONARY, 950 Pages . . . 2
- ☐ GARDENERS & GROWERS GUIDES (4 Book Set) 6
- ☐ CARPENTERS & BUILDERS GUIDES (4 Book Set) 6
- ☐ PLUMBERS & Steamfitters Guides (4 Book Set) 6
- ☐ MASONS AND BUILDERS GUIDES (4 Book Set) 6
- ☐ PAINTERS & DECORATORS MANUAL, 450 Pgs. 2
- ☐ HOUSE HEATING GUIDE, 1000 Pages . . . 4
- ☐ OIL BURNER GUIDE, 384 Pages . . . 1

Name _____

Address _____

Occupation _____

Employed by _____ 61

Art School SELF-TAUGHT Be an Artist!

Learn at home in your spare time. Enjoy this up-to-date training in Commercial Art, Designing, Cartooning and Illustrating while you qualify yourself for professional work in advertising, newspaper and magazine publishing, dept. stores, art studios, etc.

THIS ENTIRE TRAINING ONLY $9.95

Your Money Back if Not Delighted!

No previous Art training necessary. These excellent lessons guide you step-by-step. You train yourself for a fine career in Art by following these logical, easy-to-understand instructions. More than 700 illustrations included! Lessons cover industrial design, fashion drawing, painting, lettering, packaging, photography, etc., etc. Entirely PRACTICAL and commercial throughout. Satisfaction or refund guaranteed. Full price, only **$9.95.** Order "Art School Self-Taught." **No. 1** in coupon at bottom of page. Rush order today.

How to Run a RESTAURANT...

Get into a Good MONEY-MAKING BUSINESS of Your Own!

Virtually a complete self-instruction course on starting and operating profitable lunch-counter, cafeterias, diners, tea rooms, etc. Teaches you the all-important facts about leases, licenses, equipment, furnishings, decorating, kitchen arrangement, menu-planning, etc. How to make money!

FULL PRICE, Only $4.95, Postpaid

This could be your BIG chance! Satisfaction guaranteed or money back. Order "How to Run a Restaurant." **No. 2** in coupon below.

PUBLIC SPEAKING FOR SUCCESS

HOW TO HANDLE PEOPLE

Oratory and public speaking is an art which **must be learned.** Don't you believe bunk about "natural born" speakers! For your greater personal advancement this excellent course covers the fundamentals of influencing people: how to make them laugh, cry and ACT. Only **$3.95.** Circle **No. 3** in coupon below. Satisfaction or refund.

5 ACRES and INDEPENDENCE

How to Buy a Small Farm and Run It PROFITABLY!

SECURITY for years when you produce a few acres and use them wisely. You supply your own food requirements and possibly enough extra to enjoy a comfortable cash income. Teaches you practical things you want to know about livestock, farming, poultry, orchards, etc. Only **$2.95.** Order "Farming" **No. 4** in coupon.

WATCH and CLOCK REPAIRING

Learn at home spare time. How-to-do-it lessons for beginners with no previous study in the trade. Thorough self-instruction training in the fundamentals of American and Swiss timepieces. Contains a wealth of helpful photos, drawings, charts, etc. Only **$3.95** "For Everything Under Watch & Clock Repairing." **No. 5** in coupon. Satisfaction or refund guaranteed.

LOCKSMITHING & Key Making

PRACTICAL UP-TO-DATE COURSE: only $4.95 complete

Teaches you the professional "secrets." How to pick locks, de-code, make masterkeys, install and service key systems, etc. Step-by-step detailed, illustrated instructions make every operation crystal clear. Money-making information for carpenters, mechanics, hardware "sellers, gunsmiths, cycle shops, maintenance men, etc. Satisfaction guaranteed or your money back. Order "Locksmithing Course." **No. 6** in coupon. Only **$4.95.** Mail coupon today!

PIANO TUNING

Experienced piano tuners charge up to $10.00 for a job they finish in about an hour. Repeat business, too! You can start training for this profitable field right now. It is NOT necessary that you play piano or even have to understand music at all.

SELF-INSTRUCTION COURSE – only $4.95 complete price. This excellent home-study course includes instructions on piano regulating, repairing—other servicing operations every good piano tuner knows. Also covers electric organs, tuning by Stroboscope, etc. Good, clear, helpful illustrations guide you step-by-step. Money-Back Guarantee. Order "Piano Tuning Course" today. Only **$4.95. No. 7** in coupon.

APARTMENT HOUSE MANAGEMENT Wonderful field for ambitious men and women, especially those over 40. Experienced managers have steady work, good pay and SECURITY. Satisfaction or money back guarant. ed. Complete, only **$5.95.** Course **No. 8** in coupon below.

HOW TO BUY, SELL, TRADE OLD GOLD, ETC.

A new to-the-point Technical Bulletin to teach you how to make money dealing in precious metals—broken jewelry, old silver, platinum, etc. Enormous opportunities for those with experience. Only **$1.95.** Order "Old Gold." **No. 20** in coupon below.

UPHOLSTERING

Learn at Home—Start a Business

Learn this MONEY-MAKING Trade in your Spare Time

Start by doing work on your own furniture to save money and beautify your home. Then branch out as you gain experience. You'll learn quickly and enjoy these step-by-step illustrated lessons. Easy, to-follow instructions on how to create, repair and remodel practically all kinds of upholstered furniture. You get everything for only **$5.95,** complete. Satisfaction or money back. Order "Upholstering" **No. 9** in coupon.

CRIME DETECTION

A Good-Pay STEADY PROFESSION

Learn at Home—Spare Time

Be a detective! Study the fascinating fundamentals of scientific criminal investigation. And to help stop crime learn the **modus operandi** of the modern criminal—how he operates. Practically the entire field of crime detection is covered.

Includes Examination Questions and Answers

These lessons are arranged for man who want to qualify for professional work in criminology, also of immense value to detectives, investigators, officers, guardians and any law enforcement official. This valuable **up-to-date** instruction on criminal investigation may be used to great advantage by lawyers, detective story writers, etc. Complete, only **$3.95** Order "Criminal Investigation." **No. 10** in coupon.

MASTER MIND!

Learn Short-Cut Mathematics

Jungle figures, do baffling number tricks. Make people gape at your marvelous lightning-quick mind. Multiply 4 figures by 4 figures without using old-fashioned multiplication! Big cloth-bound volume; fully illustrated course. A fascinating study.

Sharpen Up Your Brain Power

Includes worked-out problems, answers, etc. Sensational bargain, only **$2.95,** postpaid—or C.O.D. plus postage. Satisfaction guaranteed or refund. Order this amazing "Short-Cut Mathematics" today. Simply circle **No. 11** in coupon. Then clip and mail.

RETIRE AND BE HAPPY

A practical plan for retiring young and fully enjoying life . . . while you still have plenty of health and vigor. Tells you how to adjust yourself and make a little money go a long way with comfort. Only **$2.95.** Order "Retirement." **No. 12** in coupon.

POULTRY RAISING

Practical, workable instructions on how to start a chicken flock in your back yard or on a small farm. Teaches you how to do egg farming efficiently, pleasantly—**and profitably!** Explains modern methods of poultry raising, step-by-step. Only **$2.95** complete. Order "Poultry Raising" **No. 13** in coupon. Satisfaction or refund!

practical RADIO servicing

Self-instruction course in one large volume—ONLY $3.95 COMPLETE! Teaches you the practical side of radio: how to adjust, test, operation, alteration, trouble-shooting. No previous knowledge necessary to master these practical lessons. Includes step-by-step illustrations, mathematics, questions & answers. Order "Practical Radio" **No. 14** in coupon. Satisfaction guaranteed.

SWEDISH BODY MASSAGE

Course of instruction in the Art of Body Massage and Hydrotherapy. Contains information on fundamentals of anatomy, physiology, procedure for complete massage, approved exercises, etc. Includes business advice. This valuable study may open door to a basic knowledge of the profession. Only **$7.95,** complete. Order "Body Massage." **No. 15** in coupon. Satisfaction guaranteed.

Complete Practical Blueprint Reading Course

Interesting, simplified self-instruction lessons for builders, mechanics, electricians, etc. 24 volume course, including over 600 actual blueprints, diagrams and step-by step drawings. FULL PRICE ONLY $7.95. Unusual bargain! Satisfaction or refund guaranteed. Order "Blueprint Reading Course." **No. 16** in coupon.

BUILD IT YOURSELF Be a practical handyman! Save time and money using these professional TRICKS-OF-THE-TRADE. Carpentry now made easy. New self-instruction course in one volume with over 600 full-page photographs, etc. Teaches practical woodworking, painting, plastering, power tools, cabinet making, etc., etc. COMPLETE PRICE ONLY **$2.49,** clear. Order "Do It Yourself" **No. 17** below.

JEWELERS & WATCHMAKERS Cyclopedia

Packed with trade secrets, watchmakers, little known formulas, etc., for opticians, stone setters, engravers, case makers, horologists, photographers, etc. 1001 money-making ideas for the practical man! Only **$1.95.** Order "Jewelers Cyclopedia." **No. 18.**

Awaken Your Hidden Powers!

YOU are a sleeping giant . . . learn how to release your unused forces. Teaches you self-mastery, influencing others, getting ahead, etc. Written by 54 renowned psychologists. COMPLETE, ONLY **$6.95.** Low price! Order "Mental Science." **No. 19** in coupon.

MENTAL SCIENCE

PROFESSIONAL PHOTOGRAPHY FOR PROFIT...

HOW TO MAKE PHOTOGRAPHY YOUR CAREER!

Start in your spare time if you prefer—but don't delay cashing in on your photographic talents. Go into business, even if you would rather start small. But first learn what it takes to make REAL MONEY in photography as a professional! This **practical** course shows you where to find opportunities . . . and how to make the most of them.

BE YOUR OWN BOSS DOING INTERESTING WORK

How to make and sell "stock" photographs; how to deal with glamorous models; how to protect yourself legally; how to arrange your workroom, lights, etc. These down-to-earth lessons show dollars-and-cents to you starting right away, if you will use them. Complete training in one hand-y volume. Only **$5.95** postpaid. Satisfaction guaranteed or your money back. Order "Professional Photography for Profit." **No. 21** in coupon below. Mail no-risk order today!

Learn YOGI! The Art of SELF MASTERY

Make the Most of What You've Got!

Practical Course – ONLY $4.95 Complete. Yogism aids your self-confidence, will-power, self-control. Helps your personal efficiency. Follows our time-tested methods for a happier, more **successful** life . . . based on modern science. Discoveries plus ancient Yogi Secrets for releasing your deeper powers. Practical, valuable for everyone, but for keen, level-headed Americans. **SEND NO MONEY.** Just pay postman $4.95, plus C.O.D. postage. Or send **$4.95** for postpaid shipment. Satisfaction or refund guaranteed. Send for "Practical Yoga Course" today! **No. 22** in coupon below.

STOP FORGETTING!

How To Develop Your Memory And Put It To Practical Use

Teaches you how to remember by teaching you how to do CLEAR-ORDERED thinking, speaking and working. Note "trick system" but virtually a self-instruction course in **concentration** and straight thinking. Learn how successful people think, speak and use USE information, knowledge and facts. This information worth its weight in gold. Full price only **$2.95.** Order "Memory Course" **No. 23** in coupon!

Better English

Daily, YOU are being judged by the language you use. Your other abilities, however great, are generally discounted if your English is faulty. So don't let your shaky English hold you back in business or social life. **Improve your speech and writing** by studying these interesting, PRACTICAL lessons. Teaches you how to increase your vocabulary—learn new words and use them right. How to spell and pronounce correctly. Secrets of good English and entertaining conversation. FULL PRICE ONLY **$2.95.** No. 30 in coupon.

REAL ESTATE BUSINESS

The foundation of all wealth is land! Train yourself for a career in this booming profession. Here is the basic information you need on how to get started and how to get ahead in real estate. **FULL PRICE, ONLY $6.95 Postpaid**

Money-making information! Includes instructions on appraisals, valuations, management, investments, practical real estate operating, low cost housing, the law of real estate including legal forms, etc., salesmanship, and many other subjects a successful real estate man must know. Strictly up-to-date. Complete, only $6.95. Money-back guarantee. No. 31 in coupon.

How to Write Songs—

A PRACTICAL COURSE IN LYRICS—MUSIC—SELLING

Best selling hit songs often are written by those who know only the special "technique" or **secrets.** You don't have to suspend long dreary years studying theoretical music in order to do popular songs the public goes wild over. If you have the stuff inside of you to begin with . . . this **practical** course will teach you how to get it down on paper and sell it—even if you don't know others to offer it for sale. ONLY **$3.95.** Satisfaction or refund guaranteed. Order "Song Writing." **No. 26** in coupon.

REVEALS to you the fundamentals of **Practical Hypnotism.** Explains how an expert operator performs—how he has developed his Personal Power and uses it to bring others under his control. Practical. He can sway some people at his will . . . he can issue commands and be obeyed. Only **$2.95.** Satisfaction guaranteed. Order "Hypnotism Course." **No. 27.**

HYPNOTISM

EUGENE FEUCHTINGER'S HINTS ON VOICE DEVELOPMENT

Basic exercises designed to strengthen your vocal organs and improve your voice. These new self-instructions include the most important parts from the world-famous voice courses put out by the Perfect Voice Institute. Full Price, only **$2.95.** In coupon below or circle **No. 28.** Order "Voice Development."

HOW TO SING FOR MONEY—Teaches you the art and business of singing popular songs professionally. **Practical** course written by ASCAP-member Charles Henderson, one of Hollywood's top-flight vocal coaches—who has worked with Bing Crosby, Dinah Shore, Frances Langford, Kenny Baker, etc. These short-cuts to success teach you how to make the most of what you've got! Full price, ONLY **$2.95.** Order "How to Sing for Money." Circle **No. 29** in coupon below.

How to Get Along in This World

Boiled down, **practical** tips on Success! Here, gathered together for the first time, are 5,000 gems of worldly wisdom on how to live joyously, successfully . . . how to handle people, make money, be happy. Most interesting—and useful. Only **$1.49.** Order "How to Get Along in This World." **No. 31.**

Satisfaction Guaranteed or Your Money Back!

Mail This No-Risk Coupon Today

NELSON-HALL COMPANY, Dept. AX-1,
210 South Clinton Street, Chicago 6, Ill.

Please rush me the practical one-volume courses I have circled below. I understand each is complete and that this is the full price, nothing more for me to pay. I have the right to examine everything you send me for 10 full days. Then if I am not more than satisfied in every way I will return the material and you **guarantee** to make complete immediate refund, without question or quibble. (Draw a circle around the number of each course you want.)

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	35	36	37	38	39

☐ I enclose $_____ in full payment. Ship entirely postpaid.
☐ Ship C. O. D. for $_____ plus postage.

NAME _____

ADDRESS _____

CITY _____ STATE _____

☐ Check here if above order is for two or more numbers. In this case we send you, **without extra charge,** a fine educational volume as a bonus. You'll be delighted with this excellent gift. And it is yours to keep, free, even if you return the courses after inspection. MAIL this coupon NOW—the special bonus offer is subject to cancellation when our present stock runs out.

IT'S EASY TO ORDER In coupon draw a circle around the number of each course you want us to send you. Print your name and full address clearly, then mail coupon right away. Send full payment with your order and we'll prepay all postage charges—on C.O.D. shipments you pay charges. Satisfaction or refund guaranteed . . . you take no risk.

BONUS! Select two or more courses from this page and we will include an **EXTRA** educational item as a special bonus . . . without any additional cost to you! You may **keep** this excellent Dividend Item, as your own, even should you send back for refund the courses you order. We reserve the right to withdraw this unusual offer when present limited stock is gone. Don't lose out—*mail coupon today!*

NELSON-HALL CO. (EST. 1909)
210 S. Clinton St., Dept. AX-1, Chicago, Ill.

INVENTORS

Learn how to protect your invention. The U. S. Patent Laws provide that any new and useful art, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if the act of invention is involved. Therefore, every inventor with a valuable invention should take advantage of the Patent Laws and proceed for patent protection in order to safeguard his rights.

A patent gives the inventor the exclusive right to prevent others from making, using, or selling the invention claimed in the patent for a period of seventeen years.

The Patent Laws were enacted for the benefit of the inventor to give him protection for the features of his invention which are patentable. These features must be properly and concisely set forth and claimed in a formal application for patent, in order to comply with the requirements of the Patent Laws. For that reason, unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and are prepared to serve you in the handling of your patent matters.

A specially prepared booklet entitled "Patent Guide for the Inventor", containing detailed information with respect to patent protection and procedure, together with a "Record of Invention" form will be promptly forwarded to you without obligation upon request.

CLARENCE A. O'BRIEN & HARVEY JACOBSON

Registered Patent Attorneys

32-A DISTRICT NATIONAL BUILDING

WASHINGTON 5, D. C.

Letters

Nonstop Driver Reports

I was extremely pleased by your careful report on our coast-to-coast nonstop run [PS, Nov. '52, p. 174]. Our only troubles were a burned-out coil and condenser and defective fuel pumps. We simply switched to the emergency units and kept rolling.

Police escorts usually wanted to take us through their towns at 60 m.p.h., but we flagged them down, explaining we were on an endurance run, not a speed test. We cooked some food in the car, and ordered the rest by radiophone from restaurants ahead. It was delivered by obliging police cars.

People turned out to watch us everywhere, and many cars followed us from one town to another. Next year I plan a 14,000-mile nonstop trip from Mexico City to Alaska.

LOUIS MATTAR, San Diego.

$13,000 Ferrari Is Too Cheap

As Western representative for Ferrari, I was embarrassed by an erroneous price of $13,000 quoted for the Le Mans Ferrari in your August issue [p. 74]. As soon as the

article appeared, I received a call from a potential customer in San Francisco who said my price of $15,500 f.o.b. New York was far in excess of the advertised price . . .

GEORGE JOSEPH Jr., Denver, Colo.

Our apologies to Mr. Joseph. The PSM reporter (himself the proud owner of a '49 Plymouth) was so awestruck by what he understood to be the correct price of $13,000 that it never occurred to him he could have got it too low.

Incidentally, in the same issue we ran a story about the Rolls-Royce Silver Dawn explaining why it cost $10,000. This presents an interesting comparison: the $15,500 Ferrari develops 250 horsepower and tips the scale at 1,847 pounds; the $10,000 Rolls puts out about 125 horsepower and weighs in at 4,200. Thus the Italian speedster costs $8.39 per pound vs. the Rolls' $2.38. However, if it's horses you're after, the Rolls sets you back $80 per horsepower, the Ferrari only $62 . . . Just can't make up our mind which automobile is the thriftier buy.

He Can Weld, Too

How about some more articles like "How I Learned Arc Welding" [Sept., p. 202] by Harry Walton. He sure can write.

R. NUNEZ, Havana, Cuba.

For another article by Harry Walton, senior editor of PSM's Mechanics & Handicraft section, see page 190.

Build a Better Trap

We sincerely appreciate the mention in P.S. News and Notes [Sept. '52, p. 162] about the reward we are offering for a "humane" small-animal trap. We have received several inquiries as a result.

LESTER A. GILES Jr.
The American Humane Association
Albany, N. Y.

Is Everest Still Climbing?

How did the author of "Will They Ever Climb Mt. Everest?" [Oct. '52, p. 118] arrive at the figure of 29,002 feet for the mountain's height? I have heard this figure ridiculed.

WILLARD ALLPHIN, Danvers, Mass.

You are perfectly right that the figure of 29,002 feet has been questioned. It was the first estimate of the mountain's height. A

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

Use these patent laws for your protection. Investigate whether your invention can be patented. If you have what you believe to be an invention, we suggest that you have this firm make a search for you.

Send for a copy of our Patent Booklet entitled "How To Protect Your Invention," containing information about patent protection and patent procedure. Along with this we will also send you an "Invention Record" form, for your use in writing down and sketching details of your invention. We will mail them promptly. No obligation. They are yours for the asking.

McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

PATENTS • COPYRIGHTS • PATENTS

142-E VICTOR BUILDING, WASHINGTON 1, D. C.

OWN a Nationally Advertised Business

● *See column "ad" in Jan. House Beautiful* ●

Now, we are appointing dealers in U.S.A., Canada, Mexico and foreign countries... in territories still open. If you are capable, cooperative and willing to work to enjoy success, we'll establish you in **your own business** and arrange easy terms to help you get started. Alert dealers can average $5.00 hourly gross profit on service they render and $3.00 on **EACH** of their servicemen at National Price Guide charges. No experience needed.

1/4 PAGE

Better Homes and Gardens

Clean Rugs and Upholstery

Duraclean Dealers' businesses are built upon the solid foundation of an international organization with 23 years of Proven Success. Duraclean Service was established to improve cleaning methods for rugs and upholstery . . . to eliminate harsh machine scrubbing . . . to prevent shrinkage from soaking. Instead of floating surface soil down into upholstery and rugs, this amazing process actually removes it!

Protects Against Moths

Here is another year 'round service rendered right in the home, office, or business building—without removing furnishings. Duraproof protects carpets, upholstery, furs, clothing, piano felts and auto interiors from damage by moths or carpet beetles. Duraproof is the only mothproof service backed by an international Money-Back 4-YEAR WARRANTY.

Voluntary and Repeat Orders

Customers are not merely satisfied—many are enthused with results and tell friends and neighbors. Duraclean is recommended by America's foremost furniture and department stores. Services are NATIONALLY ADVERTISED in magazines, such as McCall's, House Beautiful, Life, House & Garden, Ladies' Home Journal, etc. . . . to help create still more demand for you and to explain the superior merits of YOUR modern processes and to develop confidence in your service.

No Overhead Expense

Shop is optional! At the start you may want to render service yourself from your own home, on a part time basis. It's easy to learn. Almost every building in your territory houses a potential customer needing one or both services. Even auto dealers buy your Duraclean Service to revive upholstery in used cars.

World-wide Service

Patented Machine *becomes carrying case*

Two-Way Profit

You enjoy unusual profits on both materials and labor after paying service men and salesmen. Mr. E. Schalchin reported, "Have on hand 5 orders totaling over $500, obtained from recommendations of customers." J. Dalton says, "Business previous four weeks was $1,600."

FREE Booklet

If you are interested in an opportunity like this, fill out the coupon today! A letter and 16 page illustrated booklet will explain everything. We furnish electric machines, advertising matter, store cards, introduction slips, sales book, demonstrators and enough materials to return your TOTAL investment. You can have YOUR OWN business operating within a few days. Mail coupon NOW and discover for yourself. No obligation. Easy Terms!

"OWN a Business" Coupon

Duraclean Co. 3-181 Duraclean Bldg. Deerfield, Illinois

Without obligation to me, send booklet and letter giving full details. Tell me how I can OWN a growing business of my own built upon satisfied customers.

Name_____

Address_____

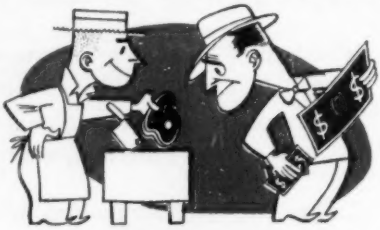
City_____ State_____

later trigonometric computation placed the height at 29,141 feet. However, the figure 29,002 is the official estimate of the Survey of India and is generally accepted by most writers.

Some geographers say the Himalayas, a young mountain range, are constantly pushing upward and both figures conceivably were correct at different times.

Paper Money in Different Sizes

A letter in your August issue [p. 12] suggested that different-colored money be used to avoid mistakes in handing out different bills. I think this is a good idea, but if bills



were made in different *sizes*, it would be impossible for even a blind man to give out the wrong one.

PFC. WILLIAM R. MAURATH,
U.S. Army, Tokyo.

Friction Does It

Referring to your answer to Jim McNabb's note about automatic-transmission cars being barred from Mt. Washington [Sept. '52, p. 12], you state that "some—makes unspecified—do not have enough compression drag for the descent." I believe it is a mistake to call it "compression drag" for it is vacuum that holds the engine and car in going downhill.

ROBERT T. JONES, Arlington, Ariz.

Theoretically, you may be slightly correct. But actually, according to a GM engineer to whom we put the question, it is neither compression drag nor vacuum that contributes most of the retarding effect that can be obtained from an engine. Engine friction tests conducted by GM show that approximately 95 percent of the retarding effect is created by engine friction. So engine friction drag seems to be the best designation. The engineer notes that you have a point in that the high vacuum created when the throttle is closed may have a slightly greater retarding effect on the pistons than the air that is compressed.

GREAT OPPORTUNITY FIELDS!

Train QUICK in Big Coyne Shops

Instructor helping students check the wiring and trace the circuits of television receivers.

This big fire-proof building is occupied entirely by Coyne.

Instructor explaining operation and testing of a large Motor Generator.

TRAINED YOUNG AND OLDER MEN—URGENTLY NEEDED IN VITAL FIELDS!

ELECTRICITY—RADIO—TELEVISION—ELECTRONICS—VITAL in defense program. Trained men whether 16 or up to 50 needed. TRAIN QUICKLY for better rating if drafted—Vital job in industry if not.

LARGEST, OLDEST, BEST EQUIPPED SCHOOL OF ITS KIND IN THE U.S.

TELEVISION-RADIO

Here at COYNE you're trained for Television, Testing, Trouble-Shooting on Radio, Public Address, F. M. Sound Units, etc. Many Coyne trained men in good jobs or own well paying Television-Radio businesses of their own.

ELECTRICITY

Big future in Power Plant Work, Motors, Industrial Electronics, Armature Winding, Home and Factory Wiring, Appliances, Refrigeration, Maintenance, Illumination, etc. Lifetime job service to Coyne graduates.

WE TRAIN YOU IN CHICAGO

Our famous Practical-Technical method gives you practical experience on a massive outlay of equipment. Actual shop work plus necessary technical training. You are trained right here in the great Coyne shops. Send for BIG FREE BOOK.

APPROVED FOR VETERANS

START NOW—PAY LATER

Enroll now, pay most of tuition after graduation. **Special plan for men of draft age.** We'll help you get part-time work, if you need it to help pay living costs while at Coyne.

B. W. COOKE, President

COYNE SCHOOL

A TECHNICAL TRADE INSTITUTE
CHARTERED NOT FOR PROFIT
Established 1899
500 S. Paulina Dept. 13-73H
Chicago 12, Illinois

ELECTRICITY ★ TELEVISION ★ RADIO ★ REFRIGERATION ★ ELECTRONICS

Mail Coupon for Big FREE Book!

Whether you prefer Television-Radio or Electricity, train on actual equipment at Coyne. We will send you a Big, fully Illustrated Book. Indicate below which course interests you most. No salesman will call. Mail coupon TODAY.

B. W. Cooke, President
COYNE SCHOOL, 500 S. Paulina St.
Dept. 13-73H Chicago 12, Ill.

Send me your Big Free book. I am interested in field checked below. This does not obligate me.

☐ TELEVISION-RADIO ☐ ELECTRICITY

NAME.....

ADDRESS.....

CITY.....STATE.....

The Dark Continents of Your Mind

DO YOU struggle for balance? Are you forever trying to maintain *energy, enthusiasm,* and the *will to do?* Do your personality and power of accomplishment ebb and flow—like a stream controlled by some unseen valve? Deep within you are minute organisms. From their function spring your emotions. They govern your *creative ideas* and *moods*—yes, even your enjoyment of life. Once they were thought to be the mysterious seat of the soul—and to be left unexplored. Now cast aside superstition and learn to direct intelligently these *powers of self.*

Accept this *Free* Book

Let the Rosicrucians, an age-old fraternity of thinking men and women (not a religion), point out how you may fashion life as you want it—by making the fullest use of these little-understood *natural faculties* which you possess. This is a challenge to make the most of your heritage as a human. Write for the Free Book, "The Mastery of Life." Address: Scribe O. J. J.

The ROSICRUCIANS

San Jose (AMORC) California

More Local Plants Needed to Make Cement Drain Tile

Hundreds of local plants are selling millions of dollars' worth of cement drain tile every year. But demand is getting bigger, and opportunities are open for hundreds more.

Farm drainage, reclamation projects, highway construction—these and other sources are creating a large market. It can be most economically supplied by compact, local plants.

Outstanding Manufacturing Opportunity

Champion drain tile machine is deliberately designed to supply compact, low-investment, tile-making equipment. Makes finest tile possible—dense, truly round, and shale proof. Better than clay tile, yet can sell for less because local production saves freight and distribution cost. But project possibilities are high. Business requires no previous experience — no skilled labor — no special building. Equipment available on easy terms. Full information on the cement tile business and equipment are given in the Drain Tile Book — free on request.

Concrete Equipment Company

E3 **521 Ottawa Ave., Holland, Michigan**

POWER MOWERS & KITS

FREE PLANS

LOW FACTORY PRICES DIRECT TO YOU

Build your own quality mower with our LOW COST KITS. Parts, Engines. Free Plans guide you. 3 and 4 Wheel Kits, complete. Parts precision finished, ready to use. Write TODAY for Free Plans, Low Prices, Parts List and Guarantee.

America's Finest Power Mowers completely assembled in 3 and 4 wheel models. Belt or direct drive, 18" and 20" sizes. Nationally known make engine. Latest improved features, sturdy construction and money back guarantee fully described in color folder. Write Today.

TRIANGLE MANUFACTURING CO., Box S-17, Fort Scott, Kansas

HYPNOTIZE

Modern speed hypnotism taught. Methods revealed. You are shown exactly what to say and do. Photo illustrated. Many interesting experiments. Self-hypnosis is fully explained. Amazing results. Detailed hypnotic tests given. Learn this exciting fascinating art. Hold your friends absolutely spellbound. Entertain.

A professional hypnotist tells you his secrets.

Free catalog of new hypnotism books sent on request.

Send for the startling book "HYPNOTISM REVEALED" → $1

78 RPM Phonograph Record Inducing Self-Hypnosis & Group-Hypnotism → $5

Thought of using sleep for learning, self-development? Send for new intriguing book, "Mental Power Through Sleep Suggestion." → $1

These two books are also available at all bookstores.

MELVIN POWERS, Master Hypnotist, 1324 Wilshire, Dept. 97, Hollywood 17, Calif.

WATCHMAKING
FREE Sample Lesson

Shows how to clean watches by hand or machine. It's fun . . . profitable too. An exciting hobby or fascinating career. Chicago School of Watchmaking will train you in professional watch repairing at home or in resident school. Learn modern methods. No experience needed. Send coupon today! No obligation.

CHICAGO SCHOOL OF WATCHMAKING

2320 N. MILWAUKEE AVE., DEPT. 413, CHICAGO 47, ILL.

SEND FREE SAMPLE LESSON ☐ Veteran

Name.....

Address.....

City.....Zone....State.....

Now IN YOUR OWN HOME *Learn*

TELEVISION RADIO

the Amazingly Effective D.T.I. WAY

Above: Work over 300 fascinating experiments with this equipment

1. Build over 300 fascinating experiments from 16 BIG SHIPMENTS of Electronic-Radio parts which you KEEP.

2. Build valuable commercial-type test equipment—as shown to the left—which you KEEP. This includes a quality OSCILLOSCOPE—a must for Television work.

3. Use a 16 mm. movie projector and new series of Hollywood produced instructive movies—a wonderful aid to help you grasp important fundamentals faster...easier...better.

4. Enjoy well-illustrated, easy-to-read lessons with handy FOLD-OUT diagrams.

5. Get an honest-to-goodness EMPLOYMENT SERVICE to help you get a good job after graduating—or assistance in starting your OWN SALES AND SERVICE BUSINESS. Mail coupon today for the complete details.

—with the aid of BOTH HOME EQUIPMENT and HOME MOVIES

What will mailing the coupon below *do for YOU?* Just this! You'll find out about one of today's most remarkable . . . practical ways to prepare to get into America's amazing billion dollar opportunity field of TELEVISION-RADIO-ELECTRONICS. You'll see how to get into fascinating work that pays well...that offers one of America's most promising futures... that enables you to start your own business almost "on a shoe string," if you prefer this to a job opportunity.

And above all, you'll get some GOOD NEWS especially welcomed by men anxious to earn REAL MONEY in this thrilling field. For you'll see that NOW you can get the kind of practical, laboratory-type training so desirable for making real progress in Television-Radio-Electronics . . . and *WITHOUT* LEAVING HOME.

You'll see that DeForest's Training, Inc. sends everything needed to set up your own HOME LABORATORY. You get and keep the same type of basic electronic equipment used in our modern Chicago Training Laboratories. You get home training that includes the knowledge and experience gained from training thousands of students first hand in Chicago. And to top it all, you use DTI's amazingly effective and exclusive home training aid—INSTRUCTIVE MOVIES. But why not get the complete story? Mail coupon today for information-packed literature.

MODERN LABORATORIES

If you prefer, get all your preparation in our new Chicago Training Laboratories—one of the finest of its kind. Ample instructors, modern equipment. Write for details!

MILITARY SERVICE!

If you're subject to military service, the information we have for you should prove very helpful. Mail coupon today.

Get BOTH of these colorful, information- packed folders FREE

Mail Coupon Today

DeFOREST'S TRAINING, INC. Dept. PS-1-J
2533 N. Ashland Avenue, Chicago 14, Ill.

I would like valuable, information-packed folders showing how I may get started toward a good job or my own business in Television-Radio-Electronics.

Name _____ Age _____
Street _____ Apt. _____
City _____ Zone _____ State _____

DeFOREST'S TRAINING, INC.
AFFILIATED WITH
De Vry Technical Institute
CHICAGO 14, ILLINOIS

Our 21st Year
TRAIN FASTER—
IN ONLY 10
RADIO.
I SEND YOU
18 BIG
KITS
of Radio Television parts and equipment. Much of your training will be actual construction and experimentation . . . the kind of truly PRACTICAL instruction that prepares you for your Radio-Television career.
YOU BUILD the Television set and the powerful superhet radio receiver shown above. IN ADDITION to the other test units shown here (many are not shown because of lack of space). All equipment I send you is YOURS TO KEEP.

Training Men for Greater Incomes and Security in Radio-Television

TRAIN *BETTER*—TRAIN *EASIER* MONTHS—OR LESS—FOR TELEVISION

NEW! NO OBLIGATION PLAN

You Have No Monthly Payment Contract to Sign —Pay For Your Training as You Earn and Learn

You can get into Radio-Television, today's fastest growing big money opportunity field, in *months* instead of years! My completely new "package unit" training plan prepares you in as little as 10 months or even less! No monthly payment contract to sign—thus NO RISK to you! This is America's finest, most complete, practical training—gets you ready to handle any practical job in the booming Radio-Television industry, where trained service technicians are needed—urgently! Start your own profitable Radio-Television shop . . . or accept a good paying job. I have trained hundreds of successful Radio-Television technicians during the past 21 years—and stand ready to train you, even if you have no previous experience! Mail coupon and get all the facts—FREE.

Valuable Equipment Included With Training

The new Sprayberry "package" plan includes many big kits of genuine, professional Radio-Television equipment. You perform over 300 demonstrations, experiments and construction projects. You build a powerful 6-tube 2-band radio set, multi-range test meter, signal generator, signal tracer, many other projects. I also include many useful books and service manuals. All equipment and lessons are yours to keep . . . you have practically everything to set up your own profitable Radio-Television service shop.

Earn Extra Money While You Learn!

Train IN YOUR HOME in spare hours. Keep on with your present job and income while learning. With each training "package" unit, you receive extra plans and "Business Builder" ideas for spare time Radio-Television jobs. New television stations everywhere open vast new opportunities for trained men—and those in training. If you expect to be in the armed forces later, there is no better preparation than practical Sprayberry Radio-Television Training.

SPRAYBERRY ACADEMY OF RADIO
111 NORTH CANAL ST., Dept. 55-S, Chicago 6, Ill.

I invite you to get all the facts—

FREE
TO YOU
3 BIG
RADIO-TELEVISION BOOKS

I want you to have ALL the facts about my new 10-MONTH Radio-Television Training—without cost! Rush coupon for my three big Radio-Television books: "How to Make Money in Radio-Television" PLUS my new illustrated Television Bulletin PLUS an actual sample Sprayberry Lesson—ALL FREE. No obligation and no salesman will call. Mail coupon NOW!

Approved for Veterans under the G. I. Bill

MAIL COUPON TODAY—NO OBLIGATION

SPRAYBERRY ACADEMY OF RADIO, Dept. 55-S
111 North Canal St., Chicago 6, Ill.

Please rush to me all information on your 10-MONTH Radio-Television Training Plan. I understand this does not obligate me and that no salesman will call upon me. Be sure to include 3 books FREE.

Name..... Age.....

Address.....

City..... Zone.....State.....

—yours with these Wizards with Wood

Making something that needs finishing? Mending something that needs gluing? If it's made of wood ask for Firzite, Satinlac and Weldwood Glue. At hardware, paint and lumber dealers—or mail coupon for leaflets.

The Wood Glue you can rely on!

To make things or fix things, use Weldwood Glue for all wood-to-wood bonds. Makes joints stronger than the wood itself. Mixes easily with water. Stain-free, rot-proof...highly water-resistant!

WELDWOOD®
PLASTIC RESIN GLUE

Gets that blond or pickled effect—

Produce those magical "woodsy" effects—on hard wood or soft, plywood or solid lumber with White Firzite. For light pastel tones, tint with Colors-in-Oil. (On fir plywood stain jobs, tame that wild grain with Clear Firzite.)

WHITE FIRZITE®

Gets that Natural-Wood Finish

—*without shellac or varnish.* On furniture, panelling or woodwork, there's nothing like Satinlac. Brings out natural grain and color beauty of any plywood or solid wood. Avoids that "built-up look; will not turn yellow or darken with age. "Water-clear," easy to brush or spray, dries ready for next coat in 2 or 3 hours.

SATINLAC®

Pints, Quarts, Gallons

United States Plywood Corporation,
Dept. 168, 55 West 44th St., New York 36, N. Y.
Send me free leaflets on Weldwood Glue, Firzite and Satinlac.

NAME_____

ADDRESS_____

313 HARD-TO-GET ALL-DIFFERENT STAMPS—25¢

SPECIAL IMPORTED COLLECTION
incl. BEAUTIFUL GERMAN

MONA LISA

A sensational imported collection of 313 all-different stamps including these valuable showpieces: **GERMANY**—beautiful Mona Lisa; **HUNGARY Diamond Shapes**—3 largest sport stamps ever issued; **SAN MARINO**—3 new bicolored triangles! You also get hundreds of other unusual stamps and sets from all over the world—**Andorra, Indonesia, Korea, Israel, etc.** It's a guaranteed $2.50 value! Total of 313 stamps are yours for only 25¢ to introduce our Bargain Approvals. Money back if not delighted. **Send 25¢ today. ASK FOR LOT EH-6.**

PLUS FREE "Midget Encyclopedia of Stamps"
—includes Stamp Identifier and Dictionary—plus terrific bargains!

ZENITH CO. 81 Willoughby St. Brooklyn 1, N. Y.

Secrets of* VENTRILOQUISM *Now Revealed!

Easy to learn in 60 to 90 days with our Home Study Course. **RESULTS GUARANTEED.** Make Money! Be Popular! Have Fun! Big Opportunity! Radio, Television, Stage Appearances! For Free Information regarding price and terms, WRITE. You must state your age. Dummy Catalog 25c.
FRED MAHER SCHOOL OF VENTRILOQUISM
Box 36, Studio 1 Kensington Station
Detroit 24, Michigan

TASOPE PHOTO-ENGRAVING PLANTS

MATERIAL COST OF THIS CUT 1/4x1 SELLING PRICE $1.00 AND UP

Establish your own profitable PHOTO-ENGRAVING business. Make cuts for newspapers, printers, and advertisers. Make etched name plates, plaques etc. Instructions furnished, no experience necessary. Sold direct from factory since 1931. First five hundred cuts sold locally or by mail will pay for plant and pay you well for your time. Write for FREE catalog.
TASOPE DEPT. PS-1, AURORA, MO.

"How to Make Money with Simple Cartoons"

A book everyone who likes to draw should have. It is free; no obligation. Simply address

FREE BOOK

CARTOONISTS' EXCHANGE
Dept. 191D Pleasant Hill, Ohio

GO IN BUSINESS—FULL OR SPARE TIME

Learn UPHOLSTERING

Earn Money as You Train

Our exclusive Home Training Plan teaches you to upholster every type of chair, sofa, ottoman. Easy, picture lessons make every step simple. You get experience as you train because we send complete tool set and materials to build ottoman. Make money as you learn, get a business started by time you graduate. *Write today for valuable, free booklet.*

COMMERCIAL TRADES INSTITUTE
1400 Greenleaf Avenue • Chicago 26, Ill. • Dept. UI-1

ARE THESE MISTAKES HOLDING YOU BACK?

If you're not getting ahead as fast as you'd like, check these possible reasons. Find out why you're not a success and what you can do about it.

YES NO

☐ ☐ **Do you put things off?** To get anywhere you have to make a start.

☐ ☐ **Do you really want to succeed?** Isn't there something you want enough to work for it? Marriage, a new home, money for your family—all depend on your advancement.

☐ ☐ **Are you unwilling to give up temporary pleasures?** Some people think more of a good time now than of promotion and higher pay later on.

☐ ☐ **Are you too lazy to plan ahead?** You've got to manage your life, plan for success and stick to it.

☐ ☐ **Are you afraid of responsibility?** In a bigger job you'll have to make decisions, act, *be* somebody.

☐ ☐ **Are you short on courage?** It takes grit and determination to set a course and stick to it.

☐ ☐ **Is your education limited?** The good jobs go to men who *know*—men with sound training in their field. I. C. S. offers you that training.

☐ ☐ **Do you think you can't afford specialized training?** College may be too expensive, but home study lets you earn while you learn, at 1/10 the cost.

☐ ☐ **Do you hesitate to find out where to get training?** If you shy off from taking the first step, you'll never achieve success.

One out of three who read this page and check their shortcomings will *do* something about it. Two will stay in the rut. One will plan for self-improvement and stay with it till he gets there. Are you the one?

I. C. S. has helped train nearly 6 million men and women for better jobs. Among its 391 courses there's one that can help *you* succeed. I. C. S. lessons are clear, direct, authoritative. They give you bedrock facts and theory with practical application. Studying at home you can progress at your own speed, have the advantage of individual instruction. Choose the course you need from the list below, and *mail the coupon today!* We'll send you full information plus free book, "How to Succeed."

INTERNATIONAL CORRESPONDENCE SCHOOLS ICS

BOX 7624-N, SCRANTON 9, PENNA.

Without cost or obligation, send me "HOW to SUCCEED" and the booklet about the course BEFORE which I have marked X:

ART
☐ Commercial Art
☐ Magazine and Book Illustrating
☐ Cartooning
☐ Show Card and Sign Lettering
☐ Fashion Illustrating

AUTOMOTIVE
☐ Automobile, Mechanic
☐ Auto-Elec. Technician
☐ Auto Body Rebuilding and Refinishing
☐ Diesel—Gas Engines

AVIATION
☐ Aeronautical Engineering Jr.
☐ Aircraft Engine Mechanic
☐ Airplane Drafting

BUILDING
☐ Architecture
☐ Arch. Drafting
☐ Building Contractor
☐ Estimating
☐ Carpenter and Mill Work
☐ Carpenter Foreman
☐ Reading Blueprints
☐ House Planning
☐ Plumbing
☐ Heating
☐ Steam Fitting
☐ Air Conditioning
☐ Electrician

BUSINESS
☐ Business Administration
☐ Certified Public Accountant
☐ Accounting
☐ Bookkeeping
☐ Stenography and Typing
☐ Secretarial
☐ Federal Tax
☐ Business Correspondence
☐ Personnel and Labor Relations
☐ Advertising
☐ Retail Business Management
☐ Managing Small Business
☐ Sales Management
☐ Salesmanship
☐ Traffic Management

CHEMISTRY
☐ Chemical Engineering
☐ Chemistry
☐ Analytical Chemistry
☐ Petroleum—Nat'l Gas
☐ Pulp and Paper Making
☐ Plastics

CIVIL, STRUCTURAL ENGINEERING
☐ Civil Engineering
☐ Structural Engineering
☐ Surveying and Mapping
☐ Structural Drafting
☐ Highway Engineering
☐ Reading Blueprints
☐ Concrete Construction
☐ Sanitary Engineering

DRAFTING
☐ Aircraft Drafting
☐ Architectural Drafting
☐ Electrical Drafting
☐ Mechanical Drafting
☐ Structural Drafting
☐ Sheet Metal Drafting
☐ Mine Surveying and Drafting

ELECTRICAL
☐ Electrical Engineering
☐ Electrician
☐ Electrical Maintenance
☐ Electrical Drafting
☐ Electric Power and Light
☐ Lineman

HIGH SCHOOL
☐ High School Subjects
☐ College Preparatory
☐ Mathematics
☐ Commercial
☐ Good English

MECHANICAL AND SHOP
☐ Mechanical Engineering
☐ Industrial Engineering
☐ Industrial Supervision
☐ Foremanship
☐ Mechanical Drafting
☐ Machine Design-Drafting
☐ Machine Shop Practice
☐ Tool Design
☐ Industrial Instrumentation
☐ Machine Shop Inspection
☐ Reading Blueprints
☐ Toolmaking
☐ Gas—Electric Welding
☐ Heat Treatment—Metallurgy
☐ Sheet Metal Work
☐ Sheet Metal Pattern Drafting
☐ Refrigeration

POWER
☐ Combustion Engineering
☐ Diesel—Electric
☐ Electric Light and Power
☐ Stationary Steam Engineering
☐ Stationary Fireman

RADIO, TELEVISION, COMMUNICATIONS
☐ General Radio
☐ Radio Operation
☐ Radio Servicing—FM
☐ Television
☐ Electronics
☐ Telephone Work

RAILROAD
☐ Locomotive Engineer
☐ Diesel Locomotive
☐ Air Brakes ☐ Car Inspector
☐ Railroad Administration

TEXTILE
☐ Textile Engineering
☐ Cotton Manufacture
☐ Rayon Manufacture
☐ Woolen Manufacture
☐ Loom Fixing
☐ Finishing and Dyeing
☐ Textile Designing

HOME ARTS
☐ Dressmaking and Designing
☐ Cookery
☐ Tea Room Management

Name_____ Age_____ Home Address_____

City_____ State_____ Working Hours_____ A.M. to_____ P.M.

Occupation_____

Special tuition rates to members of the Armed Forces. Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada

INVENTORS

Your first step—if you consider your invention to be something of importance—is to have a search made of pertinent, prior U. S. patents. If our search report indicates probable patentability of your invention, you may apply for a patent which gives you the right to exclude others from making, using or selling your invention as claimed for a term of 17 years.

This firm is registered to practice before the U. S. Patent Office and is available to assist in the preparation of the necessary drawings, specification and claims.

Ask for a copy of our instructive booklet "Patent Protection for Inventors" and our convenient "Evidence of Invention" form. No obligation.

VICTOR J. **EVANS & Co.** *Merlin M. Evans*
REGISTERED PATENT ATTORNEY
840 A MERLIN BUILDING, WASHINGTON 6, D. C.

INVENTORS

I shall be pleased to furnish you, upon request, with information relative to patent procedure—without any obligation on your part.

PATRICK D. BEAVERS
Registered Patent Attorney
937 Columbian Building, Washington 1, D. C.

INVENTORS

IF YOU WISH TO PROTECT YOUR INVENTION, You should take steps to protect it by a U. S. Patent. Write me for "INVENTION RECORD" FORM

CARL MILLER
REGISTERED PATENT ATTORNEY
WOOLWORTH BLDG., 35th FLOOR, 13C
NEW YORK CITY

MEN! send for this MONEY-MAKING OUTFIT FREE!

MAKE UP TO $15.00 IN A DAY

Do you want to make more money in full or spare time . . . as much as $15.00 in a day? Then write for this BIG OUTFIT, sent you FREE, containing more than 150 fine quality fabrics, sensational values in made-to-measure suits and overcoats. Take orders from friends, neighbors, fellow-workers. No experience needed. You'll say it's the greatest way to make money you ever saw.

PERSONAL SUITS TO WEAR
Pay No Money! Send No Money!

Our plan makes it easy for you to get your own personal suits and overcoats without paying 1c, in addition to your big cash earnings. This offer is limited. Rush your name and address for big FREE OUTFIT—today!

W. Z. GIBSON, INC., Dept. R-520
500 S. Throop Street, Chicago 7, Illinois

INVENTORS

Send for **PATENT INFORMATION** Book and **INVENTOR'S RECORD** without obligation

GUSTAVE MILLER
13PS Warner Building
Washington 4, D. C.

REGISTERED PATENT ATTORNEY
PATENT ATTORNEY & ADVISOR
U. S. NAVY DEPT. 1930-1947
ASSOCIATE EXAMINER
U. S. PAT. OFF. 1922-1929
PATENT LAWYER

PATENTS

C. A. SNOW & CO.
REGISTERED PATENT ATTORNEYS
WRITE FOR INFORMATION TO
426 SNOW BUILDING, WASHINGTON 1, D. C.

INVENTORS

Whether an invention is patentable can be substantially determined by a search of the U. S. Patent records. Without obligation, write for information explaining the steps you should take to secure a patent.

JOHN N. RANDOLPH
Registered Patent Attorney
205 Columbian Building Washington 1, D. C.

ATTENTION—ALL INVENTORS!

5,000 manufacturers **will be looking for your invention at the—**

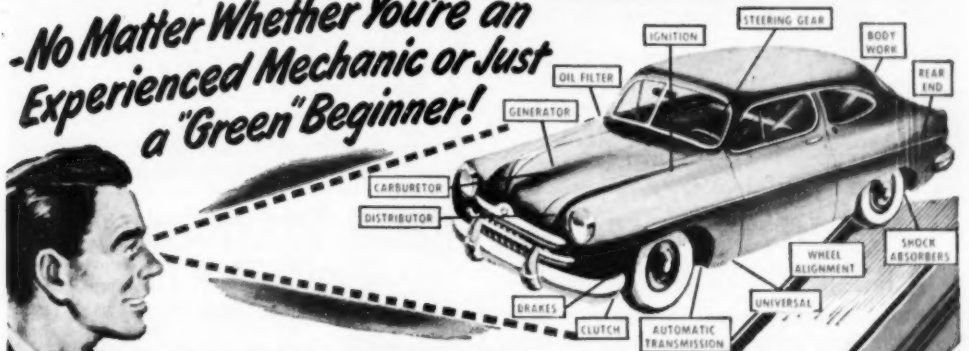
APRIL 28 to MAY 3 inclusive

FREE INFORMATION
Write today for complete information on how you can present your invention. No obligation. Address: National Science & Inventors Show, 819 N. La Brea, Los Angeles 28, California.

National SCIENCE & INVENTORS SHOW SHRINE CONVENTION HALL LOS ANGELES

Now-SEE AT A GLANCE HOW TO FIX ANY CAR

-No Matter Whether You're an Experienced Mechanic or Just a "Green" Beginner!



With MOTOR'S New AUTO REPAIR MANUAL At Your Elbow, You'll "Whiz Through" ANY Repair Job on ANY Car Built from 1935 to 1952

Here's What Users Say . . . About this "Auto Repair Man's Bible"

Other Mechanic Worked Half a Day—He Does Job in Half an Hour—"I fixed a motor . . . 30 minutes after another mechanic had worked on it half a day."—**C. AUBERRY**, Murfreesboro, Tenn.

No Trouble Learning—"Instructions so clear have no trouble learning anything about any car. Now working as mechanic in big plant."—**SAM ORDONEZ**, Calif.

Paid For Itself On First 2 Jobs—"MOTOR'S Manual paid for itself on the first 2 jobs, and saved me valuable time by eliminating guesswork."—**W. SCHROP**, Ohio

IMAGINE being able to see "at a glance" how to repair any car! No wonder thousands "rave" about MOTOR'S great new AUTO REPAIR MANUAL!

It TELLS and SHOWS everything you need to know to service, repair, tune-up or overhaul ANY part of 800 different car models. Just look up make, model, and job. Right before your eyes are giant pages of easy step-by-step directions . . . charts and diagrams . . . large clear photographs. What tools to use. Where to start. How to perform each simplified step.

Over TWO THOUSAND Pictures! So Complete, So Simple, You CAN'T Go Wrong!

NEW, REVISED edition! 800 giant pages; 2,400 "This-Is-How" pictures. Over 200 "Quick-Check" charts—more than 38,000 repair specifications. 225,000 service and repair facts. Brings you the "meat" of 170 *Official* Shop Manuals. Instructions and pictures are so clear you *can't* go wrong!

Even a green beginner can do a good job with this giant manual. Top-notch mechanics will find amazing shortcuts. No wonder this guide is used by the U. S. Army, Navy, and hundreds of thousands of repair men!

Pays for Itself in No Time

How to make a simple carburetor adjustment—or completely rebuild the transmission. ILLUSTRATED step-by-step guidance on all types of Engines . . . Chokes . . . Fuel Pumps . . . Ignition Systems . . . Oil Filters . . . Generators . . . Carburetors . . . Power Steering . . . Starting Motors . . . Clutches . . . Transmissions. (Including all automatic and semi-automatic types) . . . Overdrives . . . Universals . . . Axles . . . Brakes . . . Steering Gears . . . Shock . . . Absorbers, Basic Body Repair, AND MUCH MORE.

SEND NO MONEY

Try this great book—at our risk—for a full week FREE! See for yourself how it can save you money. If this giant book doesn't pay for itself in 7 days, simply return it and pay nothing. Mail coupon *NOW* to MOTOR Book Dept., Desk 21, 250 W. 55th Street, New York 19, N. Y.

COVERS 851 MODELS

Buick, Cadillac, Chevrolet, Chrysler, Crosley, DeSoto, Lincoln, Mercury, Nash, Dodge, Ford, Frazer, Hudson, Henry J, Kaiser, Lafayette, LaSalle, Oldsmobile, Packard, Plymouth, Pontiac, Studebaker, Terraplane, Willys

BRAND NEW EDITION! USED BY U.S. ARMY AND NAVY

FREE 7-DAY TRIAL!

Return and Pay Nothing If Not Satisfied

MAIL COUPON NOW FOR 7-DAY FREE TRIAL

MOTOR Book Dept., Desk 21, 250 West 55th Street, New York 19, N. Y.

Rush to me at once: (Check box opposite book you want)

☐ **MOTOR'S New AUTO REPAIR MANUAL.** If O.K. I will remit $1 in 7 days, plus 35c delivery charge—then $2 monthly for 2 months, and a final payment of 95c a month later. Otherwise I will return book postpaid in 7 days. (Foreign price, remit $8 cash with order.)

☐ **MOTOR'S New TRUCK & TRACTOR REPAIR MANUAL.** (Described at left.) If O.K. I will remit $2 in 7 days, and $2 monthly for 3 months, plus 35c delivery charge with final payment. Otherwise I will return book promptly. (Foreign price, remit $10 cash with order.)

Print Name . . . . . Age . . . . . .

Print Address . . . . . .

City & Zone No. . . . . State . . . . . .

☐ **SAVE 35c** delivery charges by enclosing WITH COUPON check or money order for full payment of $5.95 for Auto Manual (or $8.00 for Truck Manual). Same 7-day return-refund privilege applies.

Same FREE 7-Day Offer On MOTOR'S TRUCK & TRACTOR REPAIR MANUAL

Covers EVERY job on EVERY popular make gasoline truck or farm tractor made from 1936 thru 1952! Over 2200 pictures, 930 pages, 300,000 facts. All types Gasoline Engines, Fuel Systems, Starters, Generators, Clutches, Transmissions, Brakes, Steering, etc. For FREE trial, check proper box in coupon.

"GET ON Uncle Sam's" PAYROLL

START as high as $3,795.00 a Year

(Veterans Get Special Preference)

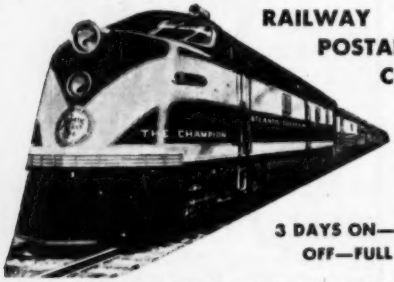
Get Ready Now for 1953 Examinations

CITY MAIL CARRIERS, POST OFFICE CLERKS

Clerks and Carriers now get $3,270.00 the first year of regular employment and automatically increase $100 a year to $4,070.00. Open to Men—Women 18 to 50. Clerks and Carriers can be promoted to other postal positions paying as high as $8,437.00.

RAILWAY POSTAL CLERKS

Railway Postal Clerks get $3,470.00 the first year of regular employment, being paid on the first and fifteenth of each month. ($144.58 each pay day.) Their pay is automatically increased yearly to $4,270.00. Advance may be had to Chief Clerk at $6,565.00 a year. Men only.



RAILWAY POSTAL CLERKS

3 DAYS ON—3 DAYS OFF—FULL PAY

Railway Postal Clerks on long runs usually work 3 days and have 3 days off duty or in the same proportion. During this off duty their pay continues just as though they were working. They travel on a pass when on business. When they grow old, they are retired with a pension.

MANY OTHER POSITIONS

Many other positions are obtainable. Rural Carriers—Stenographers—Typists—Patrol Inspectors—Meat Inspectors—etc. Those wishing these positions should qualify at once.

GET FREE LIST OF POSITIONS

Fill out the following coupon. Tear it off and mail it today—NOW, at once.

Although not government controlled, this can result in your getting a big paid government job.

FRANKLIN INSTITUTE, Dept. S80, Rochester 4, N. Y.

Rush to me, entirely free of charge (1) a full description of U. S. Government Jobs; (2) Free copy of illustrated 32-page book, "How to Get a U. S. Government Job" with (3) List of U. S. Government Jobs; (4) Tell me how to qualify for one of these jobs.

Name _____

Street _____

City _____ Age _____

Use This Coupon Before You Mislay It. Write or Print Plainly.

ACCORDIONS AT LOWEST WHOLESALE PRICES

5-DAY FREE TRIAL

"PAY AS YOU PLAY" Small Down Payment As Little As **$10 per month**

DIRECT from Importer to You!

SATISFACTION GUARANTEED, or your money back! NOW you can save up to 50% by direct purchase from America's leading distributor of famous genuine ITALIAN ACCORDIONS.

Send for FREE Illustrated Catalog!

ACCORDION MANUFACTURERS & WHOLESALERS OUTLET

2003 West Chicago Ave. Dept. P-13, Chicago 22, Ill.

Model Railroading is Fun!

Read about it in picture-packed Model Railroader magazine. Special Offer! Send $1 ($1.75 value) for special 3-month subscription plus new 64-page "Introduction to Scale Model Railroading." Limited. Act today!

Model Railroader Magazine Dept. 1673 C, Milwaukee 3, Wis.

'53 Ford The New STANDARD of the AMERICAN ROAD!

How to Make Money in PHOTOGRAPHY

Unique, low-cost LEARN-BY-DOING method and INDIVIDUAL attention trains you quickly at home in spare time. Start making money in photography at once! We show you how. Our 43rd year. Big FREE colorful book gives full facts. Write TODAY! Resident Training also available.

NEW YORK INSTITUTE OF PHOTOGRAPHY
Dept. 5, 10 W. 33 St., New York 1, N. Y.

High School at Home

Many Finish in 2 Years

No classes. No time wasted going to and from school. Progress as fast as your time and abilities permit. Standard H. S. texts supplied. Thousands enroll each year in this 55-year-old school. Send for FREE descriptive booklet.

AMERICAN SCHOOL, Dept. H146
Drexel at 58th St., Chicago 37, Ill.

Without obligation, please send FREE descriptive booklet.

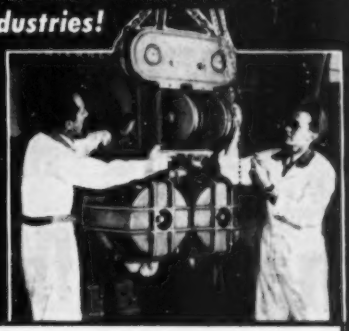
Name.....

Address.....

GET SHOP-METHOD HOME TRAINING

for SUCCESS in Today's Top Industries!

SEND COUPON TODAY for FREE BOOK and COMPLETE SAMPLE LESSON!



RADIO-TELEVISION & ELECTRONICS OR AUTOMOTIVE-DIESEL & ALLIED MECHANICS

Like a business of your own . . . or a good job with a big firm . . . and get paid for what you know? Shop-Method Home Training in Radio, Television, Electronics will bring you the job . . . money . . . you've always wanted. 105 *million* Radios, 3100 stations . . . 16 *million* TV sets, over 100 TV stations . . . many more, now Govt. restrictions are off. Defense industries want trained men for interesting, good pay jobs. Get into this opportunity-making industry . . . advance fast. Find out how . . . mail coupon . . . TODAY!

I GIVE YOU STANDARD PARTS! INCLUDING TUBES!

—they are yours to keep. You actually learn by doing, build generators, receivers, a big Super-Het radio.

THIS PROFESSIONAL FACTORY-MADE MULTI-TESTER IS YOURS!

Valuable equipment every Radio-TV man needs. Yours to keep!

INVESTIGATE NOW!

Want to be your own boss . . . or get into booming industries? 8 *million* older cars need big, profitable services and repairs. Farm machinery is going Diesel. Defense industry begs for more and more trained mechanics for high-pay jobs. National Schools Shop-Method Home Training prepares you for all Automotive, Diesel, Allied Mechanics opportunities. Helps you get the security, good pay you've always wanted. Send coupon for your Free Book and Sample Lesson now!

LET NATIONAL SCHOOLS of Los Angeles, California, a Resident Trade School for almost 50 years, train you at home for today's unlimited opportunities. Pick your industry—mail coupon below now!

EARN EXTRA MONEY WHILE YOU LEARN!

I show you how to earn extra money *while learning!* Many men have paid for their entire course in this way. You can, too. Remember: Shop-Method Home Training covers *every phase* of the industry — in an interesting step-by-step way. Why wait—take the first step to success—mail the coupon today!

DRAFT AGE? Training helps you get the service branch you want, advance fast.

That means higher pay and grade, more prestige — right away! Don't take a chance — mail coupon *now!*

I GIVE YOU THE TOOLS OF YOUR TRADE! Big professional-quality kit of tools of your trade — and all-metal tool box. All yours to keep — part of your course; they help make your training more practical — start you off right!

NATIONAL SCHOOLS

LOS ANGELES 37, CALIFORNIA

Established 1905

In Canada: 193 East Hastings Street Vancouver 4, B.C.

FREE! RADIO-TV BOOK & LESSON!

FREE! AUTO-DIESEL BOOK & LESSON!

APPROVED FOR G.I. TRAINING

DON'T PUT IT OFF GET THE BIG SALARY YOU'VE ALWAYS WANTED!

MAIL TODAY — YOU'RE "ON YOUR WAY"!

NATIONAL SCHOOLS, Dept. C-13
4000 S. Figueroa Street
Los Angeles 37, California

Mail in envelope or paste on postal card

I want to "get going"! Send me Free Book I checked and Free Sample Lesson. I understand no salesman will call.

☐ *My Future in Radio-Television & Electronics*
☐ *My Future in Automotive-Diesel & Allied Mechanics*

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ VETS! Check here if released from service less than 4 years ago.

Enjoy the Thrills of Short-Wave at a

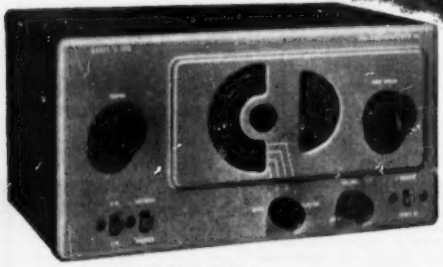
Down-to-Earth Price

FROM

hallicrafters

Here is a radio that strides the world at the touch of a dial. Now you can hear historic world events direct, hear the BBC, Paris, Australia, exciting ship-to-shore broadcasts, amateurs from all over the world, the Voice of America, Russian propaganda, police calls, and in addition you get powerful long distance, broadcast-band reception.

Here is a radio that gives you superior short-wave and standard broadcast reception, yet costs no more than you'd expect to pay for an ordinary radio. Only Hallicrafters skill and know-how, the experience gained in years of producing more military type radio communications equipment than all other manufacturers combined, could produce this set. See it. Hear it—hear what you've been missing.



HALLICRAFTERS MODEL S-38C Only $49.50

hallicrafters

WORLD'S LEADING PRODUCER OF PRECISION COMMUNICATIONS RADIOS

BLUE-WHITE & HARD

MAGA-LU-X 58 FACETS

It Doesn't SCRATCH, CHIP or BREAK!

SENSATIONAL New Ultra-Brilliant GERMAN Synthetic Gem

HERE IT IS!! BLUE-WHITE and HARD **MAGA-LU-X**, the marvelous new German product rumored late in 1952. Laymen and tradespeople alike when shown **MAGA-LU-X** and diamonds in a "you pick out which one test" are usually 50% wrong in their selections. The spectrograph test is a positive identification. **MAGA-LU-X** completes the search for BLUE-WHITEness and HARDNESS as well as Brilliance. Here are some facts about **MAGA-LU-X** . . . *BLUE-WHITE and HARD . . . Same specific gravity as diamonds, 6½mm dia.* **MAGA-LU-X** *weighs 1 carat . . . Like diamonds and unlike a previous synthetic,* **MAGA-LU-X** *works equally well in Triangle, Square, Marquise, Emerald and Baguette shapes as well as 58 facet Brilliant . . . Laboratory made* **MAGA-LU-X** *is flawless . . . Standard 58 facet American cutting system used by painstaking almost anyone having a setting;* **MAGA-LU-X** *doesn't fracture when the scratch, Chip or Break* **MAGA-LU-X** *may be worn continuously at work or play . . . BLUE-WHITE and HARD* **MAGA-LU-X** *is not detracted from by DAYLIGHT, a significant test failed by an earlier synthetic; the natural sparkle of* **MAGA-LU-X** *needs no artificial light beams to force-feed its facets . . . HARD* **MAGA-LU-X** *can be set anywhere by almost anyone having a setting;* **MAGA-LU-X** *doesn't fracture when the prongs are positioned; a wide field is opened for the amateur . . . Ideal for Jewelers equipped only for diamond setting in gold and platinum settings . . . The sharp point or cuttle of a* **MAGA-LU-X** *58 facet Brilliant will scratch glass repeatedly without itself being affected.* In sizes 1 through 4 carats and intermediate fractions. Triangle, Square, Marquise, Emerald, Baguette and 58 facet Brilliant cuts, $15.00 per carat. Add 20% Federal diamond tax. Smaller than 1 carat sizes for side stones 30% additional. Replacement stones for your present settings, to exact millimeter specifications, 15% extra. Do NOT send settings. Use paper diagrams. 30c shipping charge per order. Sent insured mail, plain package. Literature not available since above information is maximum permissible without disclosing confidential manufacturing processes. **MAGA-LU-X** can be ordered or purchased only from STARFIRE Corporation. On display and sale at our office. Guaranteed not to Scratch, Chip or Break.

STARFIRE CORP., Suite 704, Dept A, 570 7th Ave., New York 18, N.Y.

OZARKA BOAT KITS

Exclusive oak laminated construction . . . gives strongest boat hull afloat . . makes boat easier to build

22 MODELS • A BOAT FOR EVERY NEED $39.50 and up

NEW 40-PAGE CATALOG.

Full line of Ozarka Boat Kits and accessories. Page after page of wonderful kits. Send 25c for catalog.

OZARKA, INC. 713 Borden, Woodstock, Illinois

ENGINEERING DEGREE IN 27 MONTHS

Big Demand for Graduates

AERONAUTICAL, CHEMICAL, CIVIL, ELECTRICAL, MECHANICAL and RADIO ENGINEERING (inc. TV and Electronics).

Hundreds of young men are earning **B.S. ENGINEERING DEGREES** annually in this recognized institution—year around operation. New terms start quarterly. Many students earn a major part of their college expenses in this large industrial center.

Low tuition. Competent instruction. Thorough, intense, practical program. Modern, well-equipped laboratories including new physics laboratory and modern wind tunnel. Individualized instruction emphasized.

Gov't approved for G.I.'s. Engineering preparatory courses. Students from 48 states and 21 foreign countries. Enter March, June, September, December. Send coupon for free catalog and full information. Enroll now.

SEND COUPON TODAY

INDIANA TECHNICAL COLLEGE

613 E. Washington Boulevard
Fort Wayne 2, Indiana

Please send me free information on B. S. Engineering degree in 27 months as checked.

☐ Aeronautical, ☐ Chemical, ☐ Civil,
☐ Electrical, ☐ Mechanical, ☐ Radio-Television.

Name.....

Address.....

Yours for the asking— No charge—no obligation

"How to Become a Mail Order Millionaire"

Read how Gilbert on a "peanut" investment built up to $350.00 A DAY. Learn how Zimmerman started a mail order business on a buck private's pay and spiraled $16.80 into a big yearly income. See how a Chicago clerk quit a $75.00 job and now makes $22,000 a year in his own Mail Order business. Read how a southern boy made a fortune selling war-surplus parachutes which he bought as he went along. All Free! Send name on coupon for a copy of this fascinating reprint of "How to Become a Mail Order Millionaire" from Mechanix Illustrated plus details on the L.W. Mail Order Survey.

Start on a SHOESTRING!

The real-life stories of success in Mail Order read like fairy tales. If I had not personally known these people their stories would be hard to believe. Yet they are not only true, but they represent just a few of the hundreds of "little operators" who have been swept into big money by Mail Order.

GAINES. I personally guided his start when he invented an automatic pants presser. He started with one little ad in one magazine. Four years later he **retired** — with enough real estate to keep him in cash income the rest of his life.

VAN MARK. I worked with him for six years. I met him when he was a wagon man for a tea and coffee house, knocking on doors. He went into Mail Order on nothing—made money from the start —ended up six years later with savings of $50,000 and an income of $5000.00 a year for life without further work.

DUGGAN. A few years ago he was a truck driver. Started fooling with Mail Order in a spare room in his spare time. Last year he said, "I don't know how much I'm worth—after you get the first million you quit keeping track."

MRS. NIXON. Started a small Mail Order business at home—just to keep occupied. It looked good and she came to me for advice. I showed her how to expand. In two years the business got so big her husband resigned his job to help manage it.

FOXMAN. Foxman worked as a hack writer at $70 a week. He had idle time in the evenings—ran an ad offering something he didn't have—got so many **orders he had to find a source of supply. He made $18,000 the first year.** He gives me credit for "showing the way."

JORGENSON. Consulted me about a specialty product. On my advice he ran one ad to "test" its saleability. That ad brought sales of $50,000. In his first year he did a business of nearly a half million dollars. His original investment was less than a thousand.

These things I have seen. These people I have helped to the realization of their dreams — these and hundreds of others. My own fortune was made in Mail Order. And now my secrets can be yours.

L. W.

Have you ever thought of running a profitable little sideline right from your home? Has it occurred to you that *you are just as capable as anyone else* of making money on a product or service that can be sold by mail? Have you ever looked into the Mail Order business as it's run (on tiny investments) by innumerable small operators?

Forget about Sears and Ward's! *Read about the "little fellows"* . . . clerks, teachers, vets, mechanics, salesmen and others . . . who are packing Mail Order items in bedrooms, spare rooms, attics, garages, cellars . . . dumping them in the Post Office . . . and quietly banking the fistful of Money Orders, cash and checks delivered to them daily by the mailman.

An annual business of almost a billion dollars is done by "little fellows" who advertise and sell *just one item!* The Department of Commerce of the United States says, "A number of the most successful obtain incomes as high as $40,000 to $50,000.00."

It's an incredible story . . . a story of a business that's wide-open for newcomers . . . with opportunities for income far-and-away greater than you can ordinarily hope to attain by holding down a job. And in Mail Order you can stay as small as you wish—run your deal as a $50 or $75 weekly sideline—or consider jacking it up into really big figures as a full time operation.

Glance at the examples at left. *These true stories are far from unusual.* Multiply them by the hundreds and you begin to get an idea of what can be done . . . what *is* being done . . . in the phenomenal Mail Order field.

• • •

Yet, if you **were to** jump blindly into Mail Order your chances would be slim. A peculiar brand of "know-how" is vital in this little - known, little - understood business. *This is fortunate for you.* If any Tom, Dick, or Harry would "click" in Mail Order, the field would have been overloaded years ago.

But now you have the opportunity to learn the authentic secrets of successful Mail Order operation. They are revealed for the first time, step by step, in an extraordinary new Survey . . . *the L.W. Confidential Mail Order Letters.*

This Survey is not a course—not a book —not a group of lessons. It is a simple guide that anyone can follow. It shows you how to pick the right product for Mail Order. It shows you exactly how to start a profitable business *fast*, with cash or Money Orders in the envelopes you receive. It shows how to buy your product out of the very money you get in the mail, so you don't have to tie up cash in large supplies of your product. It gives you actual examples of ads and letters, *analyzed to show how and why they make money.* It demonstrates the months to start, the time to expand, the best way to get prospects' names. It reveals from A to Z the confidential facts that have made fortunes for Mail Order operators who use them.

Mail the coupon today, or simply send your name and address on a postcard. No salesman will call. We will mail, postage prepaid, a *Free* copy of "How to Become a Mail Order Millionaire" and along with it will give you complete facts about the L.W. Mail Order Survey. Read the facts. Then decide whether you would like to spend spare time or full time in a profitable, fascinating Mail Order enterprise. If you think you would like to follow the footsteps of hundreds of others who are now making good money in this way, you can get your L.W. Survey and begin at once.

Please don't decide to write us "a little later." Send your name *now*, before you forget. This one little act might be the first step to a future of independence and wealth.

The L. W. MAIL ORDER SURVEY, Dept. 31
7070 N. CLARK ST., CHICAGO 26, ILL.

The L. W. MAIL ORDER SURVEY, Dept. 31
7070 N. CLARK ST., CHICAGO 26, ILL.

Mail me a free copy of "How to Become a Mail Order Millionaire" and details about the L. W. SURVEY. It is understood there is no charge at any time, and that I am not under the slightest obligation. After reading, I will decide whether I want to use the L. W. Confidential Letters to help me start a Mail Order business at home.

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

NO MONEY DOWN!
Order . . . ON CREDIT!

10 DAYS FREE EXAMINATION

Winds Itself

Water-Resist

Shock-Resist

K312

29.75

17 JEWELS
SELF-WINDING • WATER AND SHOCK-RESISTANT

- SWEEP-SECOND
- STEEL BACK
- DUSTPROOF CASE
- ANTI-MAGNETIC
- RADIUM DIAL
- EXPANSION BAND

NO MONEY DOWN
Pay Only
$3 a Month

Fed. Tax Included

3-Piece Rhinestone 17-Jewel Watch Ensemble

P427

33.75

NO MONEY DOWN
Pay Only 3.40 a Month

17 Jewel Rhinestone Cover Watch, matching Rhinestone Necklace and Earrings. Finished in gleaming Rhodium.

L. W. Sweet, (Dept. PS153)
25 W. 14th St., New York 11, N. Y.

Send me No._____, Price $_____. Unless I return my selection to you in 10 days, I agree to pay $_____ per month until full price is paid.

My Name_____

Address_____

City_____ State_____

Age_____ Occupation_____

L. W. Sweet New York's Largest Mail Order Jewelers Established 1878

MAIL ORDER DIVISION FINLAY STRAUS, INC.
25 W. 14th St., NEW YORK 11, N. Y. Dept. PS153

MONTH AFTER MONTH, YEAR AFTER YEAR, YOU SEE OUR AD. CHECK AND DOUBLECHECK BEFORE YOU BUY ANYWHERE!
1 Are these tires "Family-Safe"? Our families use them.
2 Are They Recaps? Ours are not (except passenger Snow-Tires)
3 Will I get Goodyear, U.S. & famous Brands? From Us. You Must!
4 Is the guarantee unconditional? See our fine offers below.
5 Can good tires be bought cheaper? It's dangerous to pay less.
6 Is a tube included free? Yes, we do. See OUR Free Tube Offer.

GOODYEAR Firestone

GOODRICH, U.S. & OTHERS SLIGHTLY USED. (NO NOT RECAPS)
DOUBLE WARRANTY & UNCONDITIONAL GUAR. ON PASS. TIRES

Our policy is to select your tires so carefully, as if our very future depended on the service given by that particular tire.

FREE TUBE WITH EVERY GOOD GRADE, AND FINEST GRADE PASSENGER AND TRUCK TIRE.

GOOD GRADE 20 MONTHS GUARANTEE BOND

600-16	$4.02	820-15	$5.30	600-20	$6.92	32x6(8)	$8.50
650-16	4.40	700-15	4.22	650-20	7.52	32x6(10)	9.80
700-16	5.00	670-15	4.40	700-20	8.40	900-20	13.10
650-15	4.00	710-15	4.60	750-20	8.40	1000-20	13.62
760-15	4.90	550-19	6.54	825-20	13.92	1100-20	13.94

FINEST GRADE, 30 MONTHS GOLDEN RULE GUARANTEE BOND
THIS GRADE MADE THE "BLATT" NAME WORLD FAMOUS

600-16	$5.12	700-15	$5.82	30 MONTH GUAR. TRUCK TIRES			
600-16(6)	5.92	475-19	5.08	700-15(6)	$9.92	700-20	$12.52
650-16	5.92	640-15	5.02	700-17	10.62	750-20	12.92
650-16(6)	6.92	670-15	5.22	750-16	9.62	750-20(10)	17.52
700-16	6.92	710-15	5.72	750-15	13.22	825-20	18.22
700-16(6)	8.72	760-15	5.92	750-17	11.52	900-20	17.22
750-16	7.02	800-15	6.62	700-18	15.82	1000-20	18.52
525-18	4.92	820-15	6.72	600-20	8.72	1100-20	18.52
550-17	4.52	760-16	6.62	650-20	11.22	1200-20	21.52
650-15	5.12	450-21	5.08	32x6(8)	11.60	1000-22	17.52
WHITEWALLS $1 EA. Extra				32x6(10)	13.42	1100-22	20.42

Buy the 'Right' Truck Tires for "Your" Job	Std. Guar. 20 Mos.		Rugged Guar. 32 Mos.	
	Military Mud-Sno tread			
750-20 std	$10.08	750-20 rugg	$14.52	
750-16 std	$13.52	900-16 std	10.58	900-16 rugg 15.08
750-16 rugg	17.64	600-16 std	6.48	600-16 rugg 9.95

Factory Retread Snow-Tires. 30-month Guarantee
"New Tire Traction" Goodyear, Firestone & Others

670-15	600-16	710-15	650-15	650-16	600-15
$8.50	$8.50	760-15	700-15	800-15	

BLATT BLATT BLDG., GIRARD & LANCASTER AVES. DEPT. PS, PHILADELPHIA 31, PA.

SEND CHECK OR MONEY ORDER & THIS AD.
Shipments RUSHED Down South, Far-West and Up North

30 DAYS AT OUR RISK!

New Advertising Machine Prints and Illustrates Gov't Post Cards

FREE Send name—learn how all types of business are boosting sales with Postcard Advertising. We'll also send **FREE** illustrated book of money-making ideas for your business—complete, unique advertising plans—and ***30-day Trial Offer.***

CARDMASTER CO., 1920 Sunnyside Ave.
Dept. 161 CHICAGO 40, ILLINOIS

BECOME AN EXPERT IN TRAFFIC

Traffic men earn $4,000 to $10,000 and up. Thousands of firms need experts on rates, tariffs, regulations. We train you thoroly in spare time at home for executive traffic jobs. Personal training under traffic authorities. Placement counsel and help. Write for free 48-page book "Traffic Management—the Fast Growing Profession."

LASALLE Extension University, 417 So. Dearborn St.
A Correspondence Institution Dept. 183T Chicago 5, Ill.

MODERN
LAWN MOWER SHARPENER

Service departments of leading Lawn Mower manufacturers use the Modern Lawn Mower Sharpener. One lever moves lawn mower into grinding position. Gasoline and oil remain in engine while sharpening, no dismantling of wheels, roller or handle. The Modern is a precision bed knife grinder—no extra grinder to buy. Imitated but never equaled—Compare before you buy.

WRITE FOR FREE BOOKLET 11D

$263.00 with motor F.O.B. PASADENA

If it isn't a Modern it can't be Modern

(Prices subject to change without notice)

MODERN MFG. CO.
160 N. Fair Oaks - Pasadena 1, Calif.

HERE'S A READY-MADE FUTURE FOR YOU

Start Your own Business IN ELECTRICAL APPLIANCE REPAIRING

EARN WHILE YOU LEARN

IN YOUR OWN KITCHEN, BASEMENT OR GARAGE

LEARN at home in your spare time this fascinating big paying profession.

If you are mechanically inclined, can hold and use tools, we can give you the training and time saving kits that will enable you to . . . Command More Money At Work . . . A Better Paying Job Elsewhere . . . Or A Business Of Your Own!

New Shop Method Home Training teaches you both the technical and practical side of Electricity by having you work with your hands, Building, Testing, Repairing. All instruction manuals are written in easy-to-understand language, chock full of hundreds of detailed photos and drawings. We show you how to quickly locate the trouble, how to fix it and what to charge. ALSO, how to do House Wiring, Welding, Nickel Plating, Sharpen Lawn Mowers, Skates, etc. and how to build power tools you need from spare parts.

$5.00 TO $6.00 AN HOUR

Often charged for making ordinary repairs. We show you how to repair refrigerators, vacuum cleaners, washing machines, motors, irons, etc.

3 EASY STEPS

1

2

3

SEND FOR FREE BOOK!

CHRISTY TRADES SCHOOL, Dept. D-2301
4432 N. Kedzie Ave., Chicago 25, Ill.

Please send me FREE Illustrated Book on Electrical Appliance Repairing and Special form for paying later from earnings.

NAME..... Age.....

ADDRESS.....

CITY..... Zone..... State.....

This new manual shows you how to get

HIGH SPEED & EXTRA POWER QUICK EASY with any car

ZOOM AHEAD

0 to 60 miles in 12 seconds
Increase top speed of your car up to 30 miles
Secrets of Indianapolis Speedway Revealed!

You have heard of drivers getting **30, 40, 50** miles on a single gallon of gas . . . you've been rattled to see "tin can jalopies" beat you at the light every time . . . leave you in the dust on the highway! Now **YOU** can give your car greater pep, add 30 miles per hour to its top speed, surge ahead from 0 to 60 M.P.H. in 12 seconds flat! You can save hundreds of dollars annually, burn water with gas, extend car life by simple, easy tricks, quickly re-condition cylinder walls without removing the motor! It seems incredible—but it's true! Many of these methods have been tested by huge industrial and oil firms, special laboratories, government bureaus and used by famous Indianapolis Speedway champions. Now this information is yours in the new amazing book: **"High Speed & Extra Power"**—hot off the presses!

BEFORE

EASY PICTURES SHOW YOU HOW!

AFTER!

No need to be a mechanic! Easy directions & clear pictures show you how to get more speed, power & economy with only a **Screwdriver!** Tells of cheap gadgets that work miracles with any motor, a 1953 model or a junk-yard derelict! Shows you how to **SAVE up to $200.00** a year, increase re-sale value of your car, reduce repair costs.

Drive 45 miles or more with one gallon of gas!

Read 7 Days at Our Risk!

This great book is yours to try 7 days **without obligation!** Only **ONE** of its **1000 secrets** may begin to save money the day received. Read how a simple trick gives added power and speed in minutes, with a screwdriver; how to start a weak battery with a bumper jack. Look over plans for converting $75 jalopies into streamlined, low-sprung models with terrific horsepower, speed and European styling. Use old parts, ordinary tools. Learn how to repair dents, "fill in" with plastic paste, refinish all cars, remove rust, restore chrome appearance, enjoy amazing new gas economy with **any** car, **any** year! Only **ONE** idea can save **100** times the price of this book! And you can try it the very hour you get it. **SEND NO MONEY.** Pay only **1.98** plus post on arrival. Read it 7 days at **OUR RISK.** Try as many of the amazing methods as you wish. Let **RESULTS** talk for themselves. Note how you **ZOOM** ahead every time! Thrill to greater speed & power. Try economy hints. Check for greater mileage per gallon. You must be delightfully surprised or your money back! Act **NOW!** Mail coupon today for new thrills, new economy!

▶ **SPEEDWAY BOOKS** ◀
127 West 33rd Street, Dept. 7-SA, New York 1, N.Y

U.S. Gov't Scientist reveals how to

BURN WATER & SAVE GAS!

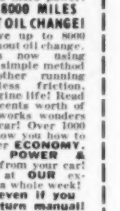
make your own "Super-Charger" with cheap mason jar & 15c rubber hose! Simple! Easy! Saves up to 15% more gas! Gives more power!

DRIVE 8000 MILES WITHOUT OIL CHANGE!

Yes! Drive up to 8000 miles without oil change. Thousands now using this new, simple method for smoother running motor, less friction, longer engine life! Read how few cents worth of graphite works wonders for your car! Over 1000 secrets show you how to get greater **ECONOMY, SPEED, POWER & SAFETY** from your car! Read it at **OUR** expense for a whole week!

FREE! even if you return manual!

1. "Pocket Trouble Shooter" gives advice on motor defects.
2. "Save on Accessories" tells how to save on tires, accessories, etc.
3. "Economy Driving Technique" shows how they get up to 168 mi. per gallon this year!
4. "33 Ways to Increase Trade-In-Value"



All 4 booklets yours free with manual!

Handy Oil for Handy People!

SAVE with Archer Pol-mer-ik 100% pure linseed oil. Refinishes furniture. Antiques. Brings out beauty of wood grain.

USE IT FOR PAINTING. Levels better. Brushes smoother. Lasts longer.

101 WAYS TO USE. Free booklet shows "Handy Uses Around Home".... "How to Paint", and "How to Save".

SEND POSTCARD FOR FREE BOOKLET

Archer Pol-mer-ik
100% PURE SUPER-TREATED LINSEED OIL

Archer-Daniels-Midland Co., 604 Roanoke Bldg., Mpls. 2, Minn

It's New! SNORKEL...CUT-OUT

Cut-out bypasses the muffler, leaving the exhaust wide open. Engineered to eliminate back pressure. Push-Pull button control from dash. Easy to install without special tools or equipment. Made of heavy plate steel—no springs, levers—or butterflies. Sliding ports efficiently open and close cut-out. C.O.D. **$7.95** postpaid. Satisfaction Guaranteed.

SOLAR CO.
Lock Box 55 Overland, Mo.

UNLIMITED OPPORTUNITIES IN ENGINEERING

DEGREE IN 27 MONTHS

Study Engineering in this world-famed school, established 1884. Demand for our graduates exceeds supply. Growing shortage of engineers. No field offers greater opportunities for responsible, lucrative positions. Approved for Korean Vets.

Bachelor of Science Degree in Mechanical, Civil, Electrical, Chemical, Aeronautical, Radio (Television) Engineering; Business Administration and Accounting. Also 36-weeks certificate courses in Surveying and Drafting.

Personalized Instruction. Accelerated courses. Non-essentials eliminated. For ambitious, earnest students. Earn your degree in the shortest possible time. Preparatory courses. Placement service.

Extensive Campus. Well equipped, new and modernized buildings; up-to-date labs. Low cost. New terms start quarterly. Enter September, January, March, June.

Mail Coupon Today

TRI-STATE COLLEGE

513 College Avenue, Angola, Indiana
Please send me free catalog and special information. I am particularly interested in courses as checked:
☐ Mechanical ☐ Civil ☐ Electrical ☐ Chemical ☐ Aeronautical
☐ Radio (Television) ☐ Business Administration ☐ Accounting
☐ Short Diploma Courses

NAME.....

ADDRESS.....

THEY MAILED THIS COUPON

... and look what I did for them!

"My arms increased 1½"; chest 2½"; forearm ⅝"."—C.S., W.Va.

"Gained 2" in neck; 1⅛" in biceps. Never felt better in my life." —J.S., Calif.

T.M., Atlas Cup Winner. "I'm proud of the way you made me an Atlas Champion."

A.H.,—Kans.— Atlas Cup Winner.

"I surprise my friends by outlifting them." D.P., Ind.

"When I started your course I weighed only 141. Now weigh 170." —T.K., New York.

"Here's my photo showing just how I look today. I owe it all to you." —W.D., New York.

"Have put 3½" on chest (normal), 2½" expanded." —F.S., N.Y.

CHARLES ATLAS,
115 East 23rd St., New York 10, N. Y.
Send me—absolutely FREE—a copy of your famous book, "Everlasting Health and Strength"—32 pages, crammed with actual photographs, answers to vital health questions, and valuable advice to help me become a better build. I understand this book is mine to keep and sending for it does not obligate me in any way.
Name Hunter Age 18
(Please print or write plainly)
Address Cedar Street
City Falls Zone No. — (if any) State N.Y.
(IF YOU USE COUPON BELOW)

You MAIL THE COUPON BELOW AND I'll Prove I Can Make YOU a New Man!

My Secret Method Has Done Wonders For Thousands—Here's What I'll PROVE It Can Do For YOU—In Just 15 Minutes A Day!

JUST MAIL the coupon below. Read my free book. And then give me 15 minutes a day. That's all I ask. I'll prove you can have the kind of body that your friends will admire. *There's no cost if I fail!*

I don't care how old or young you are, or how ashamed of your present physical condition you may be. If you can flex your arm I can add SOLID MUSCLE to your biceps—in double-quick time! I can broaden your shoulders, strengthen your back; add inches to your chest, give you a vise-like grip, make those legs of yours powerful; shoot new streagth into your backbone, exercise those inner organs, cram your body full of vigor and red-blooded vitality!

ARE YOU skinny, weak, run down? Always tired? Nervous? Constipated? Fat and flabby? Want to lose or gain weight? **WHAT TO DO ABOUT IT** is told in my **FREE BOOK.**

WHAT'S MY SECRET?

"DYNAMIC TENSION!" That's the ticket! The identical natural method that changed me from a 97-lb. weakling to the world's champion! Thousands are becoming marvelous physical specimens—my way. No gadgets or contraptions. You simply use the DORMANT muscle-power in your own God-given body—watch it increase double-quick into solid MUSCLE.

"Dynamic Tension" is easy! Only 15 minutes a day in your own home. You can use **"Dynamic-Tension"** almost unconsciously every minute—walking, bending over, etc.—to BUILD MUSCLE and VITALITY. **You'll** be using the method which many great athletes use—fighters, wrestlers, baseball, football players, etc.

FREE Illustrated 32-Page Book Not $1 or 10c—but FREE

SEND NOW for my famous book, "Everlasting Health and Strength." (Over 3½ MILLION fellows have sent for it already.) 32 pages, packed with actual photographs, valuable advice. Shows what **"Dynamic Tension"** has done for others, answers many vital questions. Page by page it shows what I can do for YOU.

This book is a real prize for any fellow who wants a better build. Yet I'll send you a copy absolutely FREE. Just glancing through it may mean the turning point in your whole life! Rush coupon to me personally: **CHARLES ATLAS, Dept. 11, 115 East 23 St., N. Y. 10, N. Y.**

SILVER CUP GIVEN AWAY
Over a foot high! Will be given to pupil who makes greatest physical improvement in next 3 months.

Charles Atlas

Awarded the title of "The World's Most Perfectly Developed Man" in an international contest.

CHARLES ATLAS, Dept. 11,
115 East 23rd St., N. Y. 10, N. Y.

Send me—absolutely FREE—a copy of your famous book, "Everlasting Health and Strength"—32 pages, crammed with photographs, answers to vital health questions, and valuable advice. I understand this book is mine to keep, and sending for it does not obligate me in any way.

Name..... Age.....
(Please print or write plainly)

Address.....

City..... State.....

CORTINA *makes it* FUN *to Learn*

French · Spanish

RUSSIAN · GERMAN

Italian, Brazilian, Japanese

—in your own home!

BIG OPPORTUNITIES and JOBS await Americans who can speak a foreign language. Millions of dollars being spent each year by government and industry in Europe, Latin America, Asia create fascinating, well-paying jobs here and abroad. Travel booming. World conditions now make a second language more valuable than ever.

Only 15 Minutes a Day

The CORTINA METHOD teaches you to speak languages LIKE A NATIVE. Right at home, relaxed, at ease, you learn easily as a child learns—BY LISTENING to these new, easy - to - understand CORTINA recordings.

Send for FREE BOOK!

THOUSANDS have learned a second language this easy way for PLEASURE, BUSINESS, TRAVEL, CULTURE. Why not you? Send for FREE book, "Cortina Short-Cut." Describes method fully —tells why it works so amazingly fast—and about FREE TRIAL offer. No obligation.

ALL NEW RECORDINGS ON UNBREAKABLE RECORDS

Mail Coupon Today!

CORTINA ACADEMY *(Established in 1882)*
Dept. 121, 105 West 40 St., New York 18, N. Y.

Please send me—without obligation—your free book. I am interested in (check)

☐ French ☐ Spanish ☐ German ☐ Italian
☐ Russian ☐ Brazilian ☐ Japanese

Name.....

Address.....

City.....Zone.....State.....

☐ VETS! Check if NOW eligible under G. I. Bill

FIRING FORGING MELTING

UTILITY OIL BURNER
BUILD YOUR OWN FURNACE
Save Time and Money

Do your own HARDENING, TEMPERING, ANNEALING, BRAZING, BENDING, ASSAYING, FORGING, BAKING, CASTING, FIRING. Cut costs tremendously. Complete instructions furnished for building kilns, forges, furnaces, with castable refractories. Burner converts kerosene, #1 and #2 fuel oil into a clean hot gas flame. Fires into open and into furnaces with controllable atmosphere. Up to 3000°F. A neat, compact, portable unit ready to operate. Burns ½ to 1½ gals. per hour; 50-200,000 Btu/hr. Wide heat range. 26" x 10" x 9"; 22 lbs; 110 v., 60 cycles. Write for complete information. Tell us your requirements. Immediate delivery. Price $89.50 FOB factory. Satisfaction guaranteed.

STODDARD PRODUCTS CO., Inc., 66 Amity Road, New Haven 15, Conn.

EAR NOISES?

If you suffer from those miserable ear noises and are Hard-of-Hearing due to catarrh of the head, write us NOW for proof of the wonderful, palliative relief many people have reported after using our simple home treatment. NOTHING TO WEAR. Many past 70 reported such relief in hearing and ear noises. **SEND NOW FOR PROOF AND 30 DAYS TRIAL OFFER.**

THE ELMO COMPANY
DEPT. 3PS1, DAVENPORT, IOWA

FREE! IMPORTS

To New Members

FROM FOREIGN LANDS

Free to new members of the International Traders Guild—many unusual, useful products from France, Japan, Germany and other foreign lands, and trade bulletins listing hundreds of import bargains to sell at high U. S. prices. Also requests from overseas buyers for U. S. exports. Opportunity, men—women, profitable, world-wide, mail order business at home; or travel abroad; no capital needed. 2,000 members in 42 countries. 7th successful year. FREE details. Mellinger Co., Suite 241, 1717 Westwood, Los Angeles 24, Calif

MONEY for MEN ALL DATA FREE

THE PLASTEX Industry needs manufacturers on small scale and for big production of Lamp and Clock Stands, Art Goods and Novelties in Plastex and Marble imitation. Experience unnecessary. 1¢ material makes regular 10c store sellers. Rubber moulds furnished for speed production. Small investment brings good returns. We are now placing big chain store orders with manufacturers. Ambitious men have chance for real prosperity. Our Free booklet will interest and benefit you.
PLASTEX INDUSTRIES, Dept. 2, 3400 Third Ave., New York 56, N. Y.

ESSENTIAL IN PEACE OR WAR

AVIATION

• MASTER A&E MECHANIC
• PILOT AND SPECIALIST
• DRAFTING AND DESIGN

The aviation industry urgently needs properly trained young men for essential civilian aviation positions. Embry-Riddle offers maximum training in minimum time. Fully accredited 6-month to 2-year courses in all aeronautical phases also aid rapid military advancement if called to armed forces. Thorough, practical instruction backed by 25 years' experience training today's aviation leaders. Complete school campus. Training authorized under G.I. Bill. Enroll today!

Illustrated catalog, address:
Registrar, Dept. 91, Miami 30, Fla.

Embry Riddle International SCHOOL OF AVIATION

TRAIN IN MIAMI—AIR CAPITAL OF THE WORLD

TURN RIGHT

Get on the Road to a Better Job-Brighter Future with *RIGHT* Training

—then You Can Really GO!

AMERICAN SCHOOL, Dept. G146, Drexel at 58th, Chicago 37, Ill.

Without obligation, please send FREE and postpaid, full particulars about the subject checked below.

- ☐ Accounting
- ☐ Air Conditioning
- ☐ Architecture & Building
- ☐ Automotive Technician
- ☐ Better Foremanship
- ☐ Bookkeeping
- ☐ Business Management
- ☐ Contracting
- ☐ Diesel Technician
- ☐ Drafting—Building Trades
- ☐ Drafting—Machine Trades
- ☐ Electrical Engineering
- ☐ Electricity—Practical
- ☐ Electronics—Industrial
- ☐ High School Courses
- ☐ Machine Shop Operations
- ☐ Mathematics & Slide Rule
- ☐ Mechanical Engineering
- ☐ Plastics Engineering
- ☐ Plumbing—Practical
- ☐ Private Secretary
- ☐ Refrigeration
- ☐ Retail Merchandising
- ☐ Salesmanship—Outside
- ☐ Sheet Metal Work
- ☐ Tool Making

NAME.....OCCUPATION.....

HOME ADDRESS.....AGE.....

CITY.....STATE.....

START NOW by checking, filling in and mailing this coupon. You'll get full information — No cost, No obligation!

• *Today*, make the BIG decision of your life. Choose the career you want and take the first easy step toward your goal. Learn how you can get the training that can put you in the bigger pay class and give you security in the years ahead. Find out how, in spare time at home, you can qualify for work you prefer, and higher pay. Or if you are already in the work you like, find out how you can win quicker promotion and a larger income.

Backed by 55 Years of Training Know-How

Since 1897 American School has helped many thousands of ambitious people toward success by providing specialized training for commercial and technical advancement. Its study program for *you* has been prepared by experts in the subject you select and the school will give you guidance every step of the way. In time you might otherwise waste and at a cost you can afford you can prepare at home and really GO on the *right* road.

Don't Delay YOUR Start

Give serious thought to the list of training courses listed above. Pick the opportunity that interests you, check it and add your name and address. (Check more than one if you are undecided which appeals most.) Then clip and mail the coupon. Full information will be supplied without cost or obligation.

PRACTICAL, EFFECTIVE HOME STUDY TRAINING SINCE 1897

AMERICAN SCHOOL, Dept. G146, Drexel at 58th, Chicago 37, Ill.

THE SOONER YOU START, THE SOONER YOUR GOAL CAN BE REACHED

ONE THOUSAND GOLDEN OPPORTUNITIES

MOST GENEROUS OFFER!

We offer men and women everywhere what we believe is the *greatest and most generous offer* ever made to ambitious people in the U.S.A.! It's like receiving an inheritance or being remembered in your rich Uncle's will! We show you how to make an endless variety of beautiful things. We supply all the materials and instructions and show you how to dispose of your products at tremendous profits! It's a fascinating business and simple to operate. NO TOOLS OR MACHINERY REQUIRED! *The casting process is as easy as pouring water out of a glass!* Work at home or in your garage!

FASCINATING BUSINESS OR HOBBY!

Make extremely beautiful imbedded jewelry, bookends, figurines, planters, ceramics, statues, ash trays, lighters, banks, lamps, exquisite gems, fishing lures, keychains, novelties, curios, gadgets, souvenirs, pensets and an unlimited variety of useful and wonderful products! This work is so pleasant and fascinating that many take it up as a grand and profitable hobby!

UNLIMITED POSSIBILITIES!

The ONLY limitation is your imagination! No special talent, no previous experience, no special tools or machinery required! We will supply you with raw materials or finished products, start you in business and *GUARANTEE* your sales or money refunded!

HOW TO START

We can't hand you cash . . . but we offer you something that ordinarily takes thousands of dollars and many years to establish; yet it's all yours for the asking! We urge you to investigate this unusual offer today. You'll be excited and thrilled over the many wonderful opportunities we hand you ABSOLUTELY FREE! Send only 25c for our big 56 page Catalog describing the fascinating process of creating and manufacturing mentioned above. Do it today . . . don't delay anything that could be so important to your future!

PLASTICAST CO. (DEPT. A)

P. O. Box 6737 **Chicago 80, Ill.** (Write to nearest address) **P. O. Box 987** **Palo Alto, Calif.**

CANADIAN CUSTOMERS: Send 35c for catalog to Canadian Ind. PLASTICS, 1056½ W. Pender St., Vancouver, B.C.

DRESS YOUR DULL GRINDING WHEELS

At last you can save time and money by reconditioning your dull grinding wheels. Apply this Genuine Industrial Diamond Dressing Tool to your dull grinding wheel for a few minutes and you'll get faster cutting results and better work. Made by the company that specializes in supplying diamond cutting tools to industry. LIMITED SUPPLY. ORDER NOW.

GENUINE *DIAMOND* DRESSING TOOL

11¼" long with diamond set in tip.

3.00 Post Paid in U.S.A.

MONEY BACK GUARANTEE

Industrial Diamond Company
2392 Wolcott Ave., Ferndale 20, Mich.
Enclosed is $3.00 for ☐ Industrial Diamond Dressing Tool.

NAME.....

ADDRESS.....

Handy Flexible SHAFT

With ⅛ Inch Adjustable Chuck

ONLY $3.95

OLD FAN MOTOR

VACUUM CLEANER MOTOR

Converts any motor, drill press, electric drill, electric fan (10 inch or larger) into a handy rotary tool. Attach ROTA-SHAFT in a jiffy. Use for grinding, polishing, sharpening, cleaning, engraving, making tools, carving on metal, plastic, wood, leather, glass. **Handles tools from zero to ¼ inch diameter.** 40-inch overall length. Complete with buff and sanding disc ready to use in a drill press chuck. ORDER TODAY!

SEND NO MONEY! Mail your order. Pay postman only $3.95 plus postage on delivery or send $3.95 with order plus 25c extra for postage. Try 10 days—if not delighted return for money back. **For use on motor—35c extra for Special Coupling. Give exact size of motor shaft diameter.**

STRADER PRODUCTS CO., Dept. H-102
259 Strader Ave. Cincinnati 26, Ohio

MAKE MONEY Selling ESHELMAN Power Mowers Riding Tractors & Rotary Tillers

RAKES PLOWS CULTIVATES HARROWS HAULS SPRAYS SAWS DOZER MOWS CUTS ROLLS TILLS SNOW PLOW

ESHELMAN FOR Better LAWNS And GARDENS

6 H.P. Also WALKING TRACTORS LOW AS $95

WOMEN CAN OPERATE IT.
Free Catalog.
Write nearest branch:
ESHELMAN CO., Dept. T-19
119 Light St., Balto. 2, Md.
333 N. Michigan Ave., Chicago 1, Ill.
105 Lake St., Reno, Nev.

REAL ESTATE

BE A BROKER

PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW! Graduates report making substantial incomes. Start and run your **own business quickly.** Men, women of all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, and related subjects. **STUDY AT HOME** or in classrooms in leading cities. Diploma awarded. Write TODAY for free book! No obligation.

FREE BOOK TELLS HOW

WEAVER SCHOOL OF REAL ESTATE (Est. 1936)
Suite 300 Law Bldg. Dept. P5 Kansas City, Mo.

ANY BOOK IN PRINT

Delivered at your door. **We pay postage.** Standard authors, new books, popular editions, fiction, reference, medical, mechanical, children's books, etc. **Guaranteed savings.** Send card for Clarkson's 1953 Catalog.

FREE Write for our great illustrated book catalog. A short course in literature. Buying guide of 300,000 book lovers. **Free** if you write **Now—Today!**

CLARKSON PUBLISHING COMPANY
Dept. PS-531 1253 S. Wabash Ave., Chicago, Ill.

TIMKEN

Silent Automatic

HEAT

OIL · GAS · COAL

TIMKEN SILENT AUTOMATIC DIVISION
The Timken-Detroit Axle Company • Jackson, Michigan
The Timken-Detroit Axle Company of Canada, Ltd., Toronto, Ont.

Accepted SA Standard

MEN—WOMEN!

Paint it with Suede!

SPRAY ON
RAINBOW COLORS

for PROFIT and Pleasure...

FLOK KRAFT

A SENSATIONAL NEW HOME BUSINESS!!
A NEW INDUSTRY . . . A NEW MIRACLE FINISH!!
MAKE $500 to $1000 PER HOUR and more!

Flok-Kraft Covers:
Fabric, Metal, Glass, Plaster, Wood, Plastic or—*any surface!*

Read What Others Say About Flok-Kraft

"Received the flok-kraft outfit and everyone that saw it is very enthused. I only had it about thirty minutes and got an order for a hundred dollar job." Mr. C. H. Maryland.

". . . I have received my order of Flok and Adhesives and believe me, I'm very pleased and happy as I've made myself MORE than the cost of my supplies already, and I've still got more jobs to do." Cpl. G. W., S. Carolina

"Got $52.50 for these 7 trunk interiors for about 4 hours work. $7.50 per trunk." J. O., Me.

". . . pleased with your course and I'm being swamped with work to do." W. F.,

YOURS TO EXAMINE WITHOUT RISK!!

Examine in your own home — then decide. The complete instructions, the full starting kit of materials and equipment and full details on how you can open your own business, spare or full time — EVERYTHING will be sent you to EXAMINE AT OUR RISK!

FREE! Booklet, Sample, Plan!

FLOK-KRAFT and DEFENSE

This amazing miracle finish is of inestimable value for use on hundreds of defense products. Flok-Kraft offers you a way to big, extra money, assisting manufacturers in many lines as well as filling a big demand on the home front.

Coast Industries, Dept. 11,
1004 Los Angeles St., Los Angeles 15, Calif.

PROFESSIONAL SECRETS CAN BE YOURS

At last the carefully guarded secrets of this amazing miracle finish can be yours. Huge profits are waiting to be tapped in this tremendous new field. Flok-Kraft gives a velvety, luxurious surface to radios, lamps, toys, signs, store displays, figurines, auto dash boards—actually a thousand and one items to be seen on every hand can easily and quickly be beautified, enriched, increased in value with Flok-Kraft. Make old objects beautiful and saleable. Make new things worth more with this soft, rich covering that can be applied to any surface, even if old and worn.

YOU CAN LEARN IN A FEW DAYS

Yes, you can learn in a few days to start making money—big money! Make to $5.00—yes! even $10.00 *and more* per hour. Everything you need is furnished, including fully detailed instructions that are *complete* and easy to understand. Every point is explained to show you how to start on the road to big money, full or spare time.

WE FURNISH EVERYTHING YOU NEED TO START

In addition to the full step-by-step instructions you get a complete set of materials and equipment that enables you to start at once. A few cents worth of materials can mean many dollars in returns to you. You can make big profits, spare or full time—add to your income from your regular job or begin to build your own successful future with a full time business of your own and do it all right in your own home! A corner of your basement, garage, service porch, kitchen or living-room is all the space you need to start.

GRASP THIS LIFETIME OPPORTUNITY TODAY

This is one too good to miss. Fill out the coupon below and mail it today for full free details. I'll arrange to send you the complete outfit—everything you need to start—for leisurely, no-risk examination right in your own home. You owe it to yourself to investigate. Write now for full, free details, samples, etc. Fill out and mail the coupon below. Do it today! Everything I send you is FREE.

SEND NO MONEY—MAIL COUPON NOW!

COAST INDUSTRIES, Dept. 11
1004 S. Los Angeles St., Los Angeles 15, California

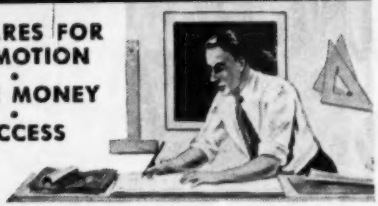
Gentlemen:
Please rush me FREE details, sample, etc., I understand that everything you send is free and that I'll be under no obligation now or ever.

NAME_____
STREET_____
CITY_____ STATE_____

C.T.C. TRAINING IN

DRAFTING

PREPARES FOR PROMOTION • MORE MONEY • SUCCESS



"Here I am at work making good money as a draftsman. I'm glad I sent the coupon to Chicago Tech for that Free Trial Lesson and found out how easy it is to learn Drafting in spare time at home. Today, I feel secure in my job. What's more, I feel I'm slated for promotion and more pay."

LEARN IN SPARE TIME—AT HOME!

(or at the College in Chicago)

A few hours of pleasant home study every week—that's all. All the tools you need; drawing outfit included. This tested method—developed over 48 years of C.T.C. progress—prepares men quickly for good positions in industry.

FREE INFORMATION — SEND COUPON

To prove to you how easy it is to learn Drafting at home by the Chicago Tech method, we will send you this FREE TRIAL LESSON. No charge for this lesson, now or later. Fill out and mail coupon, or send post card today.

CHICAGO TECHNICAL COLLEGE

A-221 Tech Bldg., 2000 So. Michigan Ave., Chicago 16, Illinois

Mail me FREE Lesson with information about big opportunities in DRAFTING.

Name.....Age.....

Address.....

City.....Zone....State.....

SHORTHAND IN 6 WEEKS AT HOME

Write 120 Words Per Minute

AGE NO OBSTACLE

Famous Speedwriting Shorthand. No symbols; no machines. Uses ABC's. Easiest to learn and use. Fast preparation for a better position and sound future.

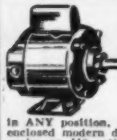
Nationally used in leading offices and Civil Service; also by executives, students, scientists, etc. 120 words per minute, 50% FASTER than Civil Service requirements. Over 150,000 taught by mail. The very low cost will surprise you. Also typing. 30th Year.

"Tired of the routine of my clerical job, I decided that Speedwriting would help me obtain the better position I wanted. Within a few weeks of sparetime study, I mastered the ABC principles of Speedwriting. Now I can take dictation quickly, read it back smoothly and easily. I have been promoted to a fine position.—W. E. Pearson, New Kensington, Pa.

Write for Free Booklet to:

Speedwriting

Dept. 2601-3, 55 W. 42nd St., N.Y. 36



ELECTRIC MOTOR BARGAIN

Brand New, Guaranteed, Famous Make

REGULAR $32.50 VALUE

For Home, Farm and Shop **$18.50** Prepaid

Tremendous name-brand buy! Use on all power tools, saws, grinders, planers, small elevators, etc. Powerful, streamlined ½ HP, single phase unit. Can be operated in ANY position. A capacitor model with fast starting torque. Totally enclosed modern design keeps out dirt, dust and chemical fumes. Operates on 110 volts, 60 cycles, 3450 RPM. Satisfaction COMPLETELY guaranteed or money back. We pay postage. Rush your order TODAY! Send for price list of other motor BARGAINS!

Paramount AIR COMPRESSOR

COMPARE Price—Features—Savings!

Reg. $24.95. Ball bearing, piston-type compressor of revolutionary new design. Can't be matched as an all-purpose, low cost unit. New principle operates it on conventional ½ HP—BUT delivers MORE than ordinary ½ HP unit. **For professional paint spraying, tire inflating, insecticiding and hundreds other uses in shop, farm, home!** Delivers 2¼ cu. ft. air per minute. Includes Tank—Air Gauge and Air Regulator for adjusting pressure from 0 to 100 lbs. Order now and SAVE! **Satisfaction guaranteed or money back.** We pay postage.

$12.95 Prepaid

ROBERTS ELECTRIC CO., 849 W. Grand, Dept. 47, Chicago, Ill.

MAGNETS 225 lb. PULL

GENUINE ALNICO—NEVER WEAKENS

AMAZING, PERMANENT MAGNETS—WILL NOT WEAKEN! NON-ELECTRIC

Retrieve guns, tackle, tools and other steel items from lake, river, plating tanks, drains or other hard-to-reach spots. Recover drills, taps, etc. from sweepings. Clear alley of harmful tacks, nails. Many other uses. Pays for itself quickly. GUARANTEED. Try any magnet one week. Money refunded if you are not well pleased.

No. S-725 (Weighs 54 oz.) Has pull of 225 lbs. on steel block **$15.00**
No. S-675 (Weighs 49 oz.) Has pull of 175 lbs. on steel block **$10.50**
No. S-650 (Weighs 41 oz.) Has pull of 150 lbs. on steel block **$ 8.50**
No. S- 30 Hobbyist assortment of six small magnets..... **$ 1.50**

Send Money Order or check. We pay postage. No C.O.D.'s.

MIAMI MAGNET COMPANY, 3240 N.W. 27th Ave., Miami 42, Fla.

SEND FOR THIS FREE!

Make money. Know how to break and train horses. *Write today for this book FREE*, together with special offer of a course in Animal Breeding. If you are interested in Gaiting and Riding the saddle horse, check here ( ) *Do it today—now.*

BEERY SCHOOL OF HORSEMANSHIP

Dept. 581 **Pleasant Hill, Ohio**

learn to HYPNOTIZE!

Command others with hypnotic power! Amaze everyone with your new spellbinding technique. New easy to master course teaches you this mystic art, quickly, expertly, professionally. Have subjects at your mercy. Make them obey your every desire. Send for this Valuable Book Now! Just pin $1 to this ad and "25 lessons in Hypnotism" will be mailed to you postpaid. Satisfaction guaranteed or your money back.

Books Publishing Co., 56 W. 24th St., New York 10, N. Y.

FOR ALL TRUSS WEARERS FREE TRUSS PAD EASERS!

Here's wonderful news for all truss wearers. In order to introduce the new Active Man Truss Pad Easer—we will send every truss wearer who answers this advertisement a sample pad easer *absolutely free*. There are no strings to this offer, no obligation on your part—not a single penny to pay either now or later. These remarkable new pad easers provide a soft buoyant air cushion that fits under any truss pad—gives you increased comfort, reduces irritation and greatly improves the holding power and safety of your truss. Prove this to yourself—by writing today for your FREE Active Man Truss Pad Easer. Only *one* to a person.

½" x 3⅜" x 5⅜"

Active Man Truss Company

Dept. PS-1

549 W. Randolph St., Chicago, Ill.

New! Super Resistant Finish "ARMOR-PLATES" Any Wooden Surface

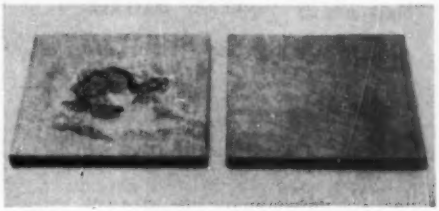
New Liquid Forms Hard Plastic Surface . . . Goes On Like Paint . . . Hardens Like Indestructible Glass

START with any bare wooden (or composition) surface—apply this FENOLIC 101, just like paint with a brush or spray gun—and in several hours you have a hard, plastic surface PRACTICALLY INDESTRUCTIBLE! It can be a clear transparent surface, or in a choice of colors.

RESISTS ALCOHOL, ACIDS, STAINS, CUTS AND SCRATCHES, EXTREME HEAT AND FIRE, POUNDING AND SHOCKS, WEAR AND TEAR, EXTREME WEATHER, RAIN OR SNOW, —Almost Anything!

Will take the most grueling punishment and pounding without any effect. Will last for years and years under the most difficult conditions of use and abuse. After all this, will look as new as when put on.

The secret is a combination of "thermosetting resins" hardened by a special chemical which gets the same result as the heat and pressure usually required to form a plastic. The result is a plastic-tough film with amazing resistant qualities to heat, chemicals, abrasion and weather.



STARTLING FIRE TEST

The surface at the left was coated with a high grade varnish . . . the surface at the right, with Fenolic 101. Then, for demonstration, flaming acetone burned for half a minute. In the varnished surface at the left you see warping, softening, blistering. In the Fenolic 101 surface at the right, *no damage whatsoever!*

TESTED IN WEATHER . . . AND IN WATER!

Mahogany panels coated with Fenolic 101 were exposed in Florida for **one year** with no loss of gloss. And again at tide water in Newark, N. J. bay . . . And on an industrial roof in Houston, Texas . . . Same results! No loss of gloss.

Easy To Apply—Brushes or Sprays on Like Paint!

FENOLIC 101 goes on with brush or spray as easily as ordinary paint. It comes in two containers . . . one, of the thermosetting plastic . . . the other a small bottle of chemical catalyst. It can be used on bare board or composition board.

What The Experts Say!

Carson & Lundin well known New York architects, say (of clear Fenolic 101): "The surface of the oak stair treads in the Swissair offices are becoming richer with age and there is no apparent change in the finish. In view of very active traffic on the stairway, we believe the material has outstanding qualities where heavy usage prevails."

Mr. L. S. Blodgett, Editor on Marine Engineering and Shipping Review, writes about a sea sled he and his son built. "It is evident that this is a completely permanent finish, highly resistant to wear and abrasion . . . The extremely hard smooth finish on the bottom shows no sign of service after long hard use."

A. B. Schreckinger & Sons, Refrigerator Manufacturers, say: "Almost a year ago we put Fenolic 101 Clear Finish on refrigerators installed at Marine Barracks, Navy Yard, Brooklyn. It has resisted moisture, low temperature, fats, blood, etc. with no apparent injury.

Here's How You Can Use It

There is no limit to the industrial, craft and home uses of this wonder product—Fenolic 101. This new product highly recommended for any working, play or home area or surface that has to withstand intense, extreme conditions of abuse or wear. Try it at our risk. If not satisfied, return for full refund.

We have just found it is an ideal coating for sailing and motor boats. It's the longest wearing surface for floors—say in dance halls, auditoriums, lobbies, etc. It's perfect for photographic darkroom working surfaces. It's good for jewelry workers' tables—neither the acids nor the heats affect it and it does not absorb any dust, gold or prosaic kind.

ORDER NOW—UNCONDITIONAL MONEY BACK GUARANTEE!!!

This is the sort of product that can save you a lot of trouble, adds years of wear and keeps an article looking new for a lifetime of service. Try Fenolic 101 on any product or surface. Then give that article **any kind of abuse you like!** If Fenolic 101 doesn't do all we claim it will, return the package to us at our expense for a full refund.

Dries Fast! Hardens Fast!

FENOLIC 101 dries fast! It is dust free in from 1-20 minutes . . . Set to touch in half hour . . . Dry to handle in an hour. It can actually take light sanding in a few hours, hard sanding in a day. In comparison, remember that high grade varnish films do not dry all the way for many days and require weeks to reach maximum hardness. FENOLIC 101 becomes 3/5 as hard as plate glass in from 7 to 10 days!

HOW MUCH Is Needed!

A quart can is sufficient to cover a surface of 100 square feet--one coat. For best results, depending on usage, two coats are recommended. A gallon—obviously will cover 400 square feet — one coat.

DEALERS! Write for information about prices and territories! Bedford Co., Dept. F, 80 E. 11th St., New York 3, N. Y.

BEDFORD CO., 80 E. 11th St., Dept. F, New York 3, N. Y.

Please send me your Complete Package of amazing new Fenolic 101 as follows on a Money Back Guarantee basis, if not delighted.

1 Quart Can Fenolic 101. Check color desired: ☐ Clear, ☐ Red, ☐ Brown, ☐ Ivory-White, ☐ Blue, ☐ Green

1 Can Fenolic Oil Reducer (Thinner, also for cleaning brushes and sprays.)

1 Bottle Fenolic 101-c—The acid formulation known as a catalyst, to be mixed with Fenolic 101.

Total Price $6.00 for Clear—$6.50 for Color.

1 Gallon Kit that includes a quart of reducer and a bottle of catalyst.

Total Price $13.00 for Clear—$14.50 for Color.

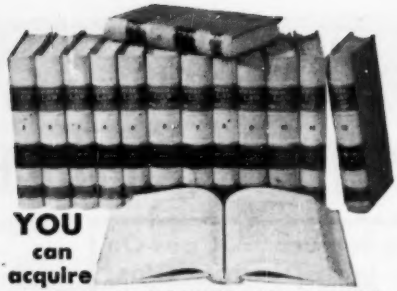
☐ Enclosed is check or money order. Send postpaid.

☐ Send C.O.D. I agree to pay postage.

NAME.....

Street.....

City.....Zone.....State.....



YOU can acquire

LAW NIGHTS AT HOME! LL. B. DEGREE

LaSalle's famous Law Library—used as reference in many Law libraries and Law offices—has enabled thousands to master Law surprisingly fast, in spare hours at home, for business and professional advancement.

These 14 remarkable volumes, compiled by leading professors and lawyers, cover the whole basic field of Law in condensed, orderly, simplified manner.

You advance rapidly with this great library, plus special lectures furnished. We guide you step-by-step with personalized Problem Method of instruction . . . you *learn by doing*—handling legal problems—not by memorizing rules.

Send for two FREE 48-page booklets, "Law Training for Leadership," and "Evidence," answering questions about Law and its value to you, and telling how LaSalle Law graduates are winning rapid advancement in business and public life. Mail coupon below. No obligation.

LA SALLE EXTENSION UNIVERSITY
A Correspondence Institution

417 S. Dearborn St. Dept. 183L Chicago 5, ILL.

Send me your two FREE booklets described above; without obligation.

Name.....*Age*.....

Street.....

City, Zone & State.....

BUILD YOUR OWN *Heathkit* TEST EQUIPMENT

Heathkits are completely engineered instruments supplied unassembled. Every kit goes together smoothly and easily. All drilling, punching, and painting has already been done for you. All parts are furnished and are of highest quality.

Detailed construction manual shows clearly where each wire and part goes and tells exactly how to build the kit.

WRITE FOR FREE CATALOG

HEATH COMPANY
BENTON HARBOR 16, MICHIGAN

BE A MONEY MAKER

Auto Technician
Diesel Technician

MEN IN DEMAND—TOP PAY!

● Two big pay technician opportunities are before you—Auto and Diesel. Both offer high earnings, job security and a bright future to trained men. If you are ambitious to qualify for one of these opportunities this 55-year-old career school can help you to win, through easy-to-master home study in spare time. Investigate *now*. Just write AUTO or DIESEL on a post card, with your name and address, and mail AT ONCE for full information. Address:

AMERICAN SCHOOL, Dept. T146, Drexel Ave. at 58th St., Chicago 37, Ill.

FREE! SEND FOR MY NEW PLAN FOR A BUSINESS OF YOUR OWN!

METALIZE BABY SHOES

Add to your present income or have a full-time business. Fill huge demand for most precious keepsakes. Start at once—no big investment. Complete instructions include *all* processing methods. It's fun and very profitable. Start now — SEND NO MONEY — just name and address.

•Instructions Include Complete Kit of Supplies & Beautiful BRONZED BABY SHOE

KIKTAVI CO., Dept. S-531, 7217 S. Broadway, Los Angeles 3, Cal.

ENORMOUS PROFITS CASTING AT HOME

Write today for NEW FREE CATALOG

Learn to cast thousands of perfect figurines, plaques, book ends, ash trays, etc. Start **NOW—NO EXPERIENCE, LITTLE CAPITAL** needed. Earn **GREAT PROFITS** with **X.L. RUBBER MOLDS.** X.L. Rubber, Pts. **$2.50,** Qts. **$4.00** (postage extra); Models and enough rubber for 3 molds . . . **$1.50** postpaid.

PLASTIC ARTS STUDIO 3403 S. Madison St. Dept. 3 MUNCIE, IND.

New Way to Improve YOUR ENGLISH

A command of effective English gives you added advantages and better opportunities. Poor English handicaps you more than you will ever realize. You can improve your English through Sherwin Cody's 100% self-correcting invention.

If you are ever embarrassed by mistakes in grammar, spelling, punctuation, or pronunciation, this new free book "How You Can Master Good English in 15 Minutes a Day" will prove a revelation to you. Send for it **now.** It is free. No obligation. No agent will call. Address **SHERWIN CODY COURSE IN ENGLISH, 181 B & O Building, Rochester 14, N. Y.**

Sensational Device Tests Eyes

SAVE up to $15.00 on Glasses!

Big news to the millions of Spectacle Wearers and Prospects. Means Freedom from Outrageous Prices. Sold on Money-back Guarantee.

MAKE BIG MONEY QUICK—FREE SAMPLE KIT!

Show it to friends and others. Let them use it Free and watch their amazement over this Self Testing system. Here is a great new opportunity in a tremendous new field of unlimited possibilities. Spare or full time. No experience needed. Write for Free sample kit.

C. G. Optical Co., Dept. A-152, 20 E. Delaware Pl., Chicago 11, Ill.

THOUSANDS NOW PLAY

who never thought they could!

After Ten Months Plays in Band

I had no idea I would accomplish so much musically. After only ten months I was playing in bands. I now am employed in a music store as an instructor. This I owe to your marvelously simple lessons.
*R. C., Paterson, New Jersey

Wouldn't Take $1000 for Course

The lessons are so simple that anyone can understand them. I have learned to play by note in a little more than a month. I wouldn't take a thousand dollars for my course. *S. E. A., Kansas City, Mo.

Shares Course With Sister

The teaching is so interesting and the pieces so beautiful I couldn't ask for anything better. I recommend your course highly. My sister shares it with me and feels the same way. *D. E. G., Wausau, Wisc.

Lots of Fun

The progress I have made is thrilling. I'm on Lesson Seven and tossing off "Little Buttercup" like a maestro. The course is easy and what is most important—lots of fun.
*B. B., Jr., Hartford, Connecticut

Plays After 2 Months

I hesitated before sending for your course because of an earlier experience I had with a course by ear from another company. I am playing pieces now I never dreamed I would play after only two months.
*E. T., Prichard, Ala.

*Actual pupils' names on request. Pictures by professional models.

You, too, can play any instrument By this EASY A-B-C Method

YOU think it's difficult to learn music? That's what thousands of others have thought! Just like you, they longed to play some instrument—the piano, violin, guitar, saxophone or other favorites. But they denied themselves the pleasure—because they thought it took months and years of tedious study to learn.

Learn in Spare Time at Home

And then they made an amazing discovery! They learned about a wonderful way to learn music at home—without a private teacher—without tedious study—and in a surprisingly short time. They wrote to the U. S. School of Music for the facts about this remarkable short-cut method. And the facts opened their eyes! They were amazed to find how easy it was to learn.

The result? Over 900,000 men and women have studied music at home this simple, A-B-C way. Now, all over the world, enthusiastic music-lovers are enjoying the thrilling satisfaction of creating their own music. They have found the key to good times, popularity and profit.

Costs Only Few Cents a Day

And that's what **you** can do, right now. Get the proof that you, too, can learn to play your favorite instrument — quickly, easily, in spare time at home for only a few cents a day. Never mind if you have no musical knowledge, training or talent. Just read the fascinating booklet and Lesson-Sample that fully explain all about the famous U. S. School method. Instruments supplied when needed, cash or credit. If interested tear out the coupon now, before you turn the page. U. S. School of Music, Studio C151, Port Washington, N. Y. (55th successful year).

FREE!

Book and Lesson-Sample

Choose Your Favorite Instrument

Now it's easy to learn — **by** note — Piano, Guitar, Piano Accordion, Violin, Haw. Guitar, Mandolin, Trumpet, Cornet, Saxophone, Tenor Banjo, Organ, Ukelele, Clarinet, Trombone, Flute, Piccolo, Modern Elementary Harmony. Write **your** choice in coupon.

U. S. School of Music, Studio C151, Port Washington, N.Y.

Send me FREE BOOK and FREE Lesson-Sample. No obligation—and no salesman is to call upon me. I'm interested in playing (name instrument).....

.....

☐ I do ☐ I do not—have instrument now.

Name.....
(Please Print)

Address.....

City..... State.....
(Please state Zone No. if any)

GO PLACES

LISTEN and LEARN a LANGUAGE by LINGUAPHONE IN 20 MINUTES A DAY

World's-Standard CONVERSATIONAL METHOD

FRENCH
SPANISH
GERMAN
RUSSIAN
JAPANESE
—any of 29 LANGUAGES available

Another Language—Another Opportunity

You can step into a whole new world of business and cultural opportunities—double your travel enjoyment, increase your chances for specialized work in the Armed Services—when you speak another language.

NO TEXTBOOK CAN TEACH YOU TO SPEAK

With Linguaphone you bring a foreign land right into your own home—you learn another language the same easy, natural way you learned English as a child, long before you went to school. You **listen**—you hear native voices, both men's and women's. You **understand**—you SPEAK! You read and write.

WORLD-WIDE EDUCATIONAL ENDORSEMENT

Used internationally by thousands of schools, colleges, Armed Services, government agencies, and over a million home-study students.

STOP WISHING—START TALKING. Mail coupon TODAY for fascinating FREE book "Passport to a New World of Opportunity."

SEND FOR FREE BOOK

LINGUAPHONE INSTITUTE
147-01 Mezz., Rock. Plaza, New York 20, N. Y.

LINGUAPHONE INSTITUTE
147-01 Mezz., Rock. Plaza
N. Y. 20, N. Y.

Send me your FREE book. I want to learn ..... language, for ..... purpose.

Name .....
Address .....
City & State .....

☐ Check if Veteran

STOP Faucet Leaks for years!

SNAP-in SWIVEL WASHER

FEATURED IN READER'S DIGEST . .

This amazing faucet washer lasts 10 to 20 times longer that ordinary washers. Patented swivel action allows washer to seat tightly without grinding—practically eliminates wear. Genuine Neoprene face disc. Snaps into faucet stem—no special tools needed. Ask your hardware dealer for Snap-in Swivel Washers. 3 for 69c. Accept no substitute. If dealer cannot supply, send 69c and bibb washer size to Snap Products Co., Division of Harrison Industries, 847 W. Harrison St., Chicago, Ill.

INSTALL A "MILE-O-METER"

LEARN HOW TO SAVE GAS AND TUNE YOUR OWN MOTOR . . .

"Mile-O-Meter" on the dashboard registers miles per gallon faithfully at all speeds, under every driving condition . . . Will show what speed your engine delivers its maximum power. Can save you many gallons of gas . . . Provides constant check on engine condition — Warns you of operating imperfections for 31 different motor adjustments . . . Nationally advertised in leading magazines and newspapers . . . Can be installed in a few minutes . . . transferred from old to new car. Fine watch precision . . . Order yours today!

STD. Model **$9.75** 2¾" Dia. Ppd. Fed. Tax Incl.

HUGE 24 PAGE INSTRUCTION MANUAL AND MILEAGE CALCULATOR INCLUDED FREE!

Installation requires no experience . . . becomes a constant companion on every trip. Saves cost in a short time. This professional gauge is a must!

$14.95 DELUXE MODEL with Chrome Ring 3¾" Dia. Ppd. Fed. Tax. Incl.

GALE HALL ENGINEERING Dept 306
BOSTON 18, MASS.

DELUXE MODEL NOW ILLUMINATED

OIL FROM THE PUBLIC LANDS

Get the amazing story of how U. S. citizens can file for oil rights on public land in the West. Profits made as high as $250,000 for $250; $11,000 monthly for $200. We select lands in possible oil areas, show you how to file. Send for free booklet.

CALIFORNIA LEASE CO.
7075-PS Hollywood Blvd., Los Angeles 28, Calif.

TALK—SING—PLAY OVER YOUR RADIO

with the real Radio Mike! Attaches in a jiffy—full instructions given! Swell for "parties"—"cut in" on or "kid" regular network programs or put on your own broadcasts! Amaze your friends—real fun. Beautiful Metallic Plastic 6 in. high!

12 RADIO BROADCAST LESSONS GIVEN with each mike

SEND NO MONEY Just pay postman $3.99 COD plus postage or send $3.99 and we pay postage! *Radio Mike* is available *only* from us by mail—*guaranteed*.

Midway Co., Dept. MPS-1, Kearney, Nebr.

LEARN FASCINATING

Leathercraft

Make your own bags, belts, wallets, etc. Learn fascinating, profitable leathercraft in spare time. Send 25c for valuable Catalog, has over 200 photographs. (refunded first purchase).

BURTONS LEATHERCRAFT
Dept. PS-1, 1755½ Glendale Boulevard, Los Angeles 26, Calif.

MACHINE-TOOL OPERATORS ! ! !

If the job is tough—you can bet the tooling is wrong! Make your job easier by "tooling up" right.

MACHINE SHOP TOOLING, a unique reference book expressly for you, tells how. Think of it! All the latest authoritative data in one compact, alphabetically compiled book. Complete, specific tool and machining data for all tools, materials, and machines in average shop. No more guessing, or searching the shop for that "how-to-do-it" bulletin.

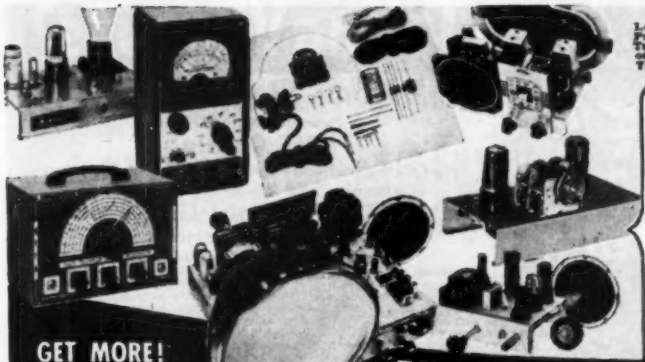
Turning tool angles for 150 materials—drilling data for 130 materials—band saw data for 250 materials—correct taps for 77 materials—largest list of tap drills and grinding wheel recommendations ever compiled. Over 300 pages of data equally comprehensive.

MACHINE SHOP TOOLING will prove to be the most useful "tool" in the box.

Don't fail to examine this "headache eliminator". Low price makes it available to all. Send only $3.00 with printed name, address for your copy. No risk—if not **completely** satisfied, return in 10 days for refund.

Send for it today—avoid trouble tomorrow!

WILCO PRESS,
Dept. S-1, 3326 N. Bailey St. Phila. 29, Pa.



Leonard C. Lane, B.S., M.A.
President of Radio-Television Training Association, Exec. Dir. of Pierce School of Radio and Television.

I GIVE YOU *MORE* EQUIPMENT TO TRAIN YOU BETTER

Set up your own home laboratory with the 15 BIG TV-Radio kits we send you. You build AND KEEP your own complete BIG SCREEN TV RECEIVER, Super-Het Radio Receiver, R.F. Signal Generator, Combination Voltmeter-Ammeter-Ohmmeter, C-W Telephone Receiver, AC-DC Power Supply. Everything is furnished complete, including all tubes, plus big TV picture tube.

GET MORE!

LEARN MORE!

EARN MORE!

THOUSANDS OF NEW JOBS IN TELEVISION

I PREPARE YOU AT HOME IN YOUR SPARE TIME

MORE TRAINING TO FIT YOU FOR THE BETTER PAY JOBS

Thousands of new jobs will open up right in your own state, now that the government has lifted restrictions on new TV stations. My simple, successful methods have helped hundreds of men — most of them with NO PREVIOUS TRAINING — find places in America's booming TELEVISION and Electronics industries. You too can get the success and happiness you always wanted out of life within months . . . studying at home . . . as I train you to become a full-fledged TV TECHNICIAN. Many of my students make as much as $25.00 a week repairing Radio-TV sets in their spare time while learning . . . pay their entire training almost from the very beginning from spare time earnings . . . start their own profitable service business.

But I don't stop after I qualify you as a TV Technician . . . although right there you can choose from among dozens of fascinating careers! I continue to train you — AT NO EXTRA COST — to qualify for even better pay in the BETTER JOBS that demand FCC licenses, with my . . .

MORE VALUE!

YOU GET A ROUND TRIP TO NEW YORK CITY AT NO EXTRA COST

FROM ANYWHERE IN THE U.S. OR CANADA — I pay your way to New York and return. PLUS 2 FREE weeks, 50 hours of advanced instruction and shop training at the PIERCE SCHOOL OF RADIO & TELEVISION. You use modern electronics equipment, including student-operated TV and Radio stations. You go behind the scenes of New York's big Radio-TV centers, to study first hand. And I give you all this AT NO EXTRA COST! (Applies to complete Radio-TV course only.)

Only RTTA makes this amazing offer.

I GET MY GRADUATES GOOD PAYING JOBS

"Thanks to your training, I qualified for a good job as a Receiver Tester at Federal Telephone and Radio." — Paul Frank Seier

"I'm making good money in my own business, repairing and installing radio and TV sets — thanks to your training." — Irwin Polansky

"Your excellent instruction helped me get my present job as an airport radio mechanic for American Airlines. — Eugene E. Baske

"I'll always be grateful to your training which helped me get my present fine position as Assistant Parts Manager." — Norman Weston

Many others working at NBC, RCA, GE, DuMont, Philco, Emerson, Admiral and other leading firms.

FREE FCC COACHING COURSE

PREPARES YOU AT HOME FOR YOUR FCC LICENSE

THE BEST JOBS IN TV AND RADIO REQUIRE AN FCC LICENSE

Given at NO EXTRA COST after TV Theory and Practice is completed.

NOW! ADVANCED FM-TV TRAINING

If you have previous Armed Forces or civilian radio experience—my ADVANCED COURSE can save you months of training. Full theory and practical training . . . complete with kits, including BIG SCREEN TV RECEIVER and FREE FCC License Coaching Course.

FREE EMPLOYMENT ASSISTANCE

My vocational adviser will help you obtain a good-paying job in the locality of your choice.

VETERANS!

MY SCHOOLS FULLY APPROVED TO TRAIN VETERANS UNDER *NEW* G.I. BILL! If discharged after June 27, 1950 — CHECK COUPON BELOW!

Also approved for RESIDENT TRAINING in New York City . . . qualifies you for full subsistence allowance up to $160 per month.

MAIL COUPON TODAY!

BOTH FREE! New Illustrated Book and Sample Lesson. Learn How My Simple Methods Make Success Easy!

NO SALESMAN WILL CALL!

Mr. Leonard C. Lane, President
RADIO-TELEVISION TRAINING ASSOCIATION
1629 Broadway, Radio City Station
New York 19, N. Y. Dept. P-1

Dear Mr. Lane: Mail me your NEW FREE BOOK and SAMPLE LESSON that will show me how I can make BIG MONEY in TELEVISION. I understand I am under no obligation and no salesman will call.

(PLEASE PRINT PLAINLY)

Name _____ Age _____

Address _____

City _____ Zone _____ State _____

I am interested in: ☐ Radio-TV ☐ Advanced FM-TV.
VETERANS: If qualified under new G.I. Bill, check your choice: ☐ Home Study ☐ Resident Study.

RADIO-TELEVISION TRAINING ASSOCIATION

1629 Broadway, Radio City Station, New York City 19, N. Y.
LICENSED BY THE STATE OF NEW YORK

FREE 100 BRITISH EMPIRE STAMPS

Sent to Acquaint You with the Exceptional Values of Our Special Offers

Get these valuable exciting stamps from the far corners of the British Empire: Pitcairn Islands (settled by mutineers), Falkland Islands (only post-office in Antarctic Circle), Tanganyika (land of pygmies and head-hunters), Ceylon, South Africa, many others! Price in Standard Stamp Catalog at least $2.00! Supply limited — so rush coupon today enclosing 10c to help pay postage and handling charges. (We'll also include other exceptional values for your inspection.)

Also FREE—

—our valuable illustrated booklet "How to Recognize Rare Stamps". Tells where and how to hunt for rare stamps, how to identify and sell them. May guide you to stamps worth hundreds of dollars!

KENMORE STAMP CO., Dept. PS-1
Milford, New Hampshire

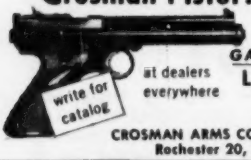
Rush me FREE 100 British Empire Stamps and Booklet "How to Recognize Rare Stamps." I enclose 10c to help pay postage and handling.

Name_____

Street_____

City_____ State_____

Crosman Pistol . . . for accuracy



write for catalog

at dealers everywhere

GAS POWERED

Low Cost Shooting indoors or out

CROSMAN ARMS CO., Dept. 46
Rochester 20, N. Y.

SAVE $65 ON THIS LUXURIOUS $100 CONTOUR CHAIR $34.95

For Everything needed complete.

Make Money selling and assembling contour chairs for friends

PUT IT TOGETHER IN ONE EVENING!

Scientifically correct design for restful, healthful, relaxing. Adjusts for perfect sitting or reclining comfort. Proved beneficial to heart, nerves . . . most popular chair in every home. Firestone foam rubber and washable, liable genuine Duran upholstery. Would cost $100 or more in any store. Shipped all ready to put together in less than one evening. No cutting, no drilling, no skill needed. A woman can do it. Order now! Everything needed for only $34.95, f.o.b. Balto. State color wanted: forest green, royal blue, ruby red, walnut brown. Enclose $5 deposit, pay balance on arrival. Money back if not satisfied.

BESTECRAFT CO. Dept. 15 BALTO. 14, MD.

Taking Vitamins?

Cut Your Costs up to 50%

A Postcard Will Bring You

FREE Catalog

that lists practically every known combination of vitamins and vitamins and minerals.

Also FREE Vitamin Guide Book

that shows you how to read a vitamin label and compare values.

No longer need you pay $4, $5, $6, up to $15, per 100 capsules for the same vitamins your Doctor advises. After 20 minutes' reading of this Guide Book you will understand vitamins as you never have before. You will not be fooled again by confusing, mysterious labels; you will be able to pick up any vitamin product and know if you are getting your money's worth. In this free catalog you are sure to find the combination of vitamins or vitamins and minerals you are now using. Compare the potencies and the prices and you'll be amazed at the savings of up to 50%. Stop buying vitamins blindly. Send postcard today for free guide book and catalog to VITAMIN-QUOTA, Dept. 13T, 880 Bway, New York 3, N. Y., or Dept. 13T, 1125 Crenshaw Blvd., Los Angeles 19, California.

A "GOOD HAND" HELPS YOU SUCCEED!

LEARN TO WRITE WELL

Your Name beautifully written, plus special pen-point for shaded writing. Only 10¢

Handwriting quickly improves with our easy-to-understand picture lessons! Put your spare time to good use: send today for ☐ FREE BOOKLET, "How to Become a Good Penman," or check volumes wanted below at $1 each: ☐ Business Writing ☐ Artistic Writing ☐ Card Writing ☐ Bird & Design Flourishing ☐ Engrossing Alphabets. COMPLETE SET $4.50. Ask for price list of penman's supplies.

OUR 53rd YEAR

TAMBLYN SCHOOL of PENMANSHIP
S. A. Zillar, Pres. 438 Ridge Bldg., Kansas City, Mo., USA

Ships & the Sea Magazine

You'll enjoy this big popular magazine. It's packed with sea-going pictures, salty yarns, charts, articles & model ship department. 50c at larger stands. **Special Offer!** Send $1 for 3-month trial. Act now!

Ships and the Sea Magazine Dept. 1673 B, Milwaukee 3, Wis.

MARVEL *Mystery Oil*

- Frees Sticky Valves
- Stops Hydraulic Valve Clatter

Buy it at your favorite gas station

Before You Buy Your Trailer— READ...

TRAILER TOPICS MAGAZINE

It brings you the latest in Trailer Coaches—Equipment—Accessories—Trailer Trips—Trailer Parks and many other interesting monthly features at only—$3.00 for 2 years.

(6 MONTH TRIAL SUBSCRIPTION $1.00)

TRAILER TOPICS MAGAZINE (Room 1583)
28 East Jackson Blvd., Chicago 4, Ill.

Now! Earn $5..$8..$10..up to $12.50 per Hr.

Sensational New HOME-BUSINESS!

AMAZING NEW PRINTING SECRETS CAN BE YOURS

LEARN AN "EXTRA TRADE"

PRINT WITHOUT A PRINTING PRESS!

OR ANY SPECIAL EQUIPMENT

SCREEN PRINT TRADE MARK REG.

PRINT colorful ADVERTISING DISPLAYS *at home!*

PRINT expensive SIGNS, BANNERS, POSTERS, LABELS, etc. *at home!*

PRINT beautiful CLOTH, FABRICS, GLASSES, NOVELTIES etc. *at home!*

WHAT IS SCREEN PRINTING?

It's a revolutionary new method of printing—*WITHOUT* an expensive printing press. This amazing new development lets you print quantities of 25, 50, 100, 500 or even 1,000 in many cases, FOR LESS THAN YOU CAN PRINT ON A $5,000 PRINTING PRESS. Just put anything under a screen and take out beautiful products of printing—no expensive plates or "cuts" needed. No big overhead. Never has such an opportunity been offered the spare-time person who wants to make "Extra Income" in his home. This amazing NEW INDUSTRY can mean huge spare time profits for you.

PRINT IN COLORS—EVEN NEW FLUORESCENT COLORS
There's no limit to the number of colors you can use. It's easy to print in luminescent, "glowing" fluorescent colors, too. (These "brilliant" new inks can ONLY be printed satisfactorily by the Screen-Print method.) Screen-Print lets you print on paper, cardboard, leather, glass, wood, plaster, fabrics—anything!

NO ART NECESSARY—EASY TO LEARN
Anyone (young or old) can be a Screen-Printing expert—he doesn't have to be a "Rembrandt" either. Beautiful printing can be produced WITHOUT doing any art work whatsoever—simple tracing is all that's necessary in most cases. Simplified photo method ELIMINATES ALL HAND WORK. No camera needed.

One of America's FASTEST GROWING BUSINESSES!
Hundreds are already profiting handsomely with Screen-Print. This New method may revolutionize the printing business, as we know it today! Get the facts NOW!

A BUSINESS OF YOUR OWN
Be your own boss. Operate from the corner of your kitchen or garage. Build a successful future with a few cents worth of materials. Screen-Printing is the opportunity to establish a spare-time business without sacrificing job or pay check—have 2 INCOMES INSTEAD OF ONE.
"I already make 75% of my expenses doing Screen-Printing only spare-time" says Mr. E. L., Ontario.

THERE'S $$$$ IN ADVERTISING!
Here's your chance to GET INTO ADVERTISING—one of the largest paying businesses in America. Most Screen-Printing is used for advertising purposes. Materials cost you 10%—you can earn 90%—few businesses offer this high profit.

HUGE DEMAND! ENORMOUS PROFITS!
Millions of shops, stores, theaters, markets—almost any business needs Screen-Printing done for them. It's possible to even do your business by mail. No house-to-house selling either. You can make $10 to $20 profit on each dollar of cost on some jobs. Here's...

YOUR "Chance of a Lifetime" OPPORTUNITY to "cash-in" on a new printing method not generally known. We supply everything you need! From easy step-by-step instructions-secrets plus materials enough to make money immediately. A complete ready-made BUSINESS PLAN guides you every step of the way. This all can be yours—at our risk. Space here does not permit telling you all the terrific opportunities of Screen-Print. Don't waste a minute — mail coupon NOW! TODAY!—and get all the FREE FACTS and ACTUAL SAMPLE.

FREE MY BOOKLET AND ACTUAL SAMPLE OF SCREEN-PRINTING. TELLS ALL THE FACTS ABOUT MY HOME-BUSINESS OPPORTUNITY PLAN.

SCREEN PRINT COMPANY Dept. 11
1010 SO. LOS ANGELES ST.,
LOS ANGELES 15,
CALIFORNIA

FREE BOOKLET AND REAL SAMPLE
MAIL TODAY!

Screen-Print Co., Dept. 11
1010 So. Los Angeles Street
Los Angeles 15, California
Dear Mr. Nowak: Please rush me booklet, facts, sample and entire Home-Business Plan. All this is Free. No salesman will call. I am under no obligation now or ever.

Name _____

Address _____

City _____ Zone ____ State _____

Free Booklet Shows how to MAKE MONEY IN ART

Book explains: Art principles; artists' earnings; age no obstacle, youth no handicap; advantages of home study; figure drawing from life; examples of successful cartoonists, illustrators; layout, lettering, fashion art; design, color, composition; reproduction processes; outline of WSA home study course; selling your work.

Booklet is *free* so you can learn of WSA's place in the art-teaching picture. We teach you from the beginning with famous Step-by-Step method; 39 years' experience; 2 art outfits included without extra cost. Enjoy a relaxing hobby—extra income—or a new and profitable career. Use coupon to get this illustrated, helpful book. No salesman will call. GI approved for eligible veterans.

$300 FOR SINGLE ILLUSTRATION

"My work has been published in magazines; least I've received is $40, most is $300. Your great course gave me the 'know-how'." Floyd M. Green, Seattle, Washington.

NOW COMMERCIAL ART PARTNER

"Was artist for engraving firm; now I'm in a commercial art partnership; I teach art in my spare time. Your course worth more to me every year." Thomas D. Dudley, Roanoke, Va.

DRAW FOR FUN & MONEY . . . DETAILS FREE

WASHINGTON SCHOOL OF ART,
Studio 131K, Washington, D. C.

Rush "Art for Pleasure & Profit" to:

Name.....Age.....

Street.....

City.....Zone.....State.....

☐ Tell me about Trial Plan

BE A WELL-PAID Television SERVICE TECHNICIAN!

NOW—For the First Time An Exclusive TV Service Training Program—8 months or less.

Get the inside facts on how you can step into the top professional $5,000 to $10,000 per year bracket of TV servicing. Free book tells you how. Master TV servicing QUICKLY by working on real live equipment right in our BIG SHOPS and LABORATORIES in America's Leading TV Servicing School. Shop trained men get the better jobs. WTI graduates win faster promotion . . . can demand better pay . . . develop highly profitable businesses of their own—with the latest and most complete PRACTICAL PERSONALIZED TRAINING BEHIND THEM. Non-essential math and engineering theory omitted. YOU CAN EARN WHILE YOU LEARN. LOW TUITION PLAN. Approved for Veterans. WTI Graduates In Big Demand. Send for your copy of this fact-packed book NOW!

SEND FOR FREE COPY TODAY!

Western Television Institute Dept. M-13
341 W. 18th St. Los Angeles 15, Calif.
Without obligation, please send FREE fully illustrated booklet. (No salesman will call.)

NAME_____

ADDRESS_____

SAVE 75% ON WORK CLOTHES!

SURPLUS STOCK FROM MIDWEST SUPPLY FIRM!
Terrific values you've got to see to believe!

SHIRTS 79c
Made to sell for 2.99! Now Only — 4 for $2.99

What a buy! 4 for the price of one! These shirts, though used, are washed, sterilized and ready for long, tough wear. In blue or tan. *Send name, address, neck size.*

PANTS to match 99c
Sold for 3.95 now only . . . . . 4 for $3.75
Unbelievable Bargains! *Send waist measure and inside leg length.*

COVERALLS . . . wear 'em used and save plenty! Originally 5.95. Now only . **$1.95**
Send chest measurement. 3 for $5.45

SATISFACTION GUARANTEED! Money back if you're not convinced these are bargains you can't beat! You can't lose so order TODAY for immediate delivery! Pay postman or send money with your order and save postage.

GALCO SALES CO. Dept. 241
4064 East 71st Street • Cleveland 5, Ohio

FREE CRAFT CATALOG

120 PAGES... Craft Supplies, Tools, Designs, Instruction Books from America's Largest, Most Complete Handcraft Stock.
Send for your free copy NOW!

GRIFFIN CRAFT SUPPLIES
5626-B Telegraph Ave. • Oakland 9, Calif.

LEARN LOCKSMITHING

Learn Locksmithing and Keymaking from Experts in Your Spare Time at Home!
Age or physical handicap no disadvantage. Year-round, steady income in this permanent, respected field. Full or part time. Practical, illustrated lessons show you how to make money even while learning! All materials and special tools supplied. Send for FREE BOOKLET.

LOCKSMITHING INSTITUTE, Dept. PS-37
15 Park Ave. Rutherford, N. J.
Lic. by State of N. J. *V.A. Approved*

Broken or Loose FALSE PLATE?

Fix it Yourself EASILY in a Few Minutes
Your plates may become broken or loose just when you need them most. With FIX-IT-KIT you can repair your own broken plates. Also tightens loose fitting plates, easily. Get permanent comfort with professional material. Complete instructions. Satisfaction guaranteed or your money refunded. *Order Now* at a new low price only **$2.98** postpaid — or sent C.O.D.

Make Plates Like New

DENT FIX DENTAL PRODUCTS Dept. PS-1
P.O. Box 674 Kansas City 8, Missouri

Illustrated BOOKLETS

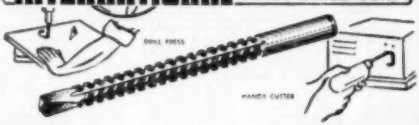
HERE THEY ARE, illustrated comic booklets just off the press. Good clear illustrations. Send $1 for 12 booklets and receive FREE two of the larger size 32 page books. Rush a buck for all 14 books to,

AL'S PRINT SHOP
216-D W. JACKSON BLVD. CHICAGO, ILL.

HI-SPEED COPE-SAW DRILL-BIT

DRILLS SAWS REAMS

INTERNATIONAL TWIST DRILL CORP.



DRILL, SAW, REAM . . . metal, pipe, wood, plastic, Transite, etc. Use with any electric drill, slow drill press, lathe or milling machine. Drills own starting hole—upper part of bit is used to cut, saw or ream circles, ovals, squares or scrolls. Easy to operate. Ideal for carpenters, mechanics, electricians, plumbers, hobbyists, many others. Abrasive resistant, high speed steel. Flutes ground from solid. Will withstand severe continuous use without breaking. Resharpened at no charge. Takes place of up to $50 in tools. ½" diameter, 2" cutting sections, total length 3½". Also available specially designed for wood or metal and in 2½" and 1⅞" lengths. Write for details. Specify all-purpose bit. Shipped same day. Money-back guarantee. Dealer inquiries invited.

SEND CASH. CHECK OR MONEY ORDER

Manufactured and distributed by:

INTERNATIONAL TWIST DRILL CORP.

618 Wyandotte, Rm. 699, Kansas City 6, Mo.

only $3.95 POST PAID

The SPEEDY STITCHER

Sews quick and strong, making new or repairing all sorts of leather and canvas articles—boots, shoes, coats, gloves, belts, saddles, golf bags, Ski, Football, Baseball, Skating, Hunting, Fishing, Camping togs, grain bags, burlap, etc.

Each stitcher comes ready to use with a reel of waxed thread and 3 needles, assorted sizes. Needles are carried in handle. A handy tool for home or on hunting, fishing or camping trips.

Price Postage prepaid $1.00

LYMAN BRADFORD CO.

Box No. 350 KINGSTON, MASS.

EYE GLASSES by MAIL As low as $1.95

WRITE for FREE CATALOG with 14 LENS SAMPLE CARD

Thousands of Customers

Est. 1939

QUALITY READING-MAGNIFYING OR BIFOCAL GLASSES FOR FAR AND NEAR

ADVANCE SPECTACLE COMPANY, Inc.

537 S. Dearborn St., Dept. SP-1 Chicago 5, Illinois

LOOK!

A MILLION THRILLS!

High Power

BINOCULARS

30 DAY FREE TRIAL

Finest Precision Optics
Featherlight
Guaranteed Savings
Money Back Guarantee
Easy Pay Plan
Compare Before You Buy!
Dealer Name on Request.

33 MODELS

$9.95 UP

FREE BOOK & COLOR CATALOG

Bushnell Bldg., Dept. P61
Pasadena 1, Calif.

BUSHNELL Binoculars

FREE GUIDE How to Select Binoculars

NAME _____ CITY _____

ADDRESS _____ STATE _____

BECOME AN

Electrical Engineer

- Major in Electronics or Power B. S. Degree in 36 months
- Television Technician Certificate in 18 months

FOLLOW THIS PLAN

By 1954 there will be *at least* two positions for every engineering and technician graduate. Enter these opportunities early . . . earn your B. S. Degree in 36 months through optional year 'round study.

TELEVISION

TECHNICIANS are needed throughout America's fastest growing industry.

You become a Radio Technician in 12 months. In 6 additional months become a *Radio-Television Technician.* These Technician Courses are complete in themsevles and can be applied as *one-third* of the B. S. Degree program. Recent developments forecast unlimited opportunities for TV technicians and engineers.

Choose from these courses:

General preparatory course—3 months

SERVICE 6 to 12 months
- Electricity
- Welding
- Refrigeration
- Heating
- Radio-Television

TECHNICIAN 12 to 18 months
- Radio and Television
- Electronics
- Electrotechnics (Power)
- Mechanical Technician
- Welding
- Air Conditioning

ENGINEERING 36 months B.S. Degree
- Electrical Engineering Major in Electronics or Power
- Mechanical Engineering

TERMS OPEN APRIL, JULY, OCTOBER, JANUARY

Military, Practical, or Academic training evaluated for advanced credit. Faculty of specialists. Over 48,000 former students from all states and 23 overseas countries. *Nonprofit. Founded in 1903.*

MILWAUKEE

SCHOOL OF ENGINEERING

MILWAUKEE SCHOOL OF ENGINEERING
Dept. PS-153 1025 N. Milwaukee
Milwaukee 1, Wisconsin

Without obligation send Catalog for Electrical Engineering, B. S. Degree, major in ☐ Electronics; ☐ Power; ☐ "Your Career"; Occupational Guidance Bulletin on: ☐ Radio-TV ☐ Electrical Power ☐ Mechanical Engineering ☐ Welding ☐ Heating, Refrigeration, Air Conditioning ☐ Preparatory.

Name_____Age_____

Address_____

City_____Zone_____State_____

If veteran, indicate date of discharge_____

THIS SMART NEW HOLLYWOOD LOUNGE SUIT

YOURS AS A BONUS!

MAKE REAL MONEY IN BUSINESS FOR YOURSELF . . .

Just showing this tailored-to-measure suit and taking orders from your friends.

BIG CASH BONUS

Now you can have a business of your own, with top profits in full or spare time, and get this handsome tailored-to-measure suit as a bonus! You just show America's biggest suit values and make up to $15-$20 daily, plus extra profits and big cash bonus, selling these fine suits to your friends.

You pocket a cash profit when you take the order. You earn an extra cash bonus. And you get your own suit as an added bonus. Thousands of dollars are paid out every year in extra profits and bonuses to our dealers, on top of regular earnings.

FREE SALES KIT and SAMPLES!
Rush coupon for full details of this wonderful deal . . . get FREE selling kit and sample line . . . everything you need to succeed.

GREAT WESTERN TAILORING CO.
Dept. P
837 W. Jackson Blvd., Chicago 7, Ill.

GREAT WESTERN TAILORING CO., Dept. P
837 W. Jackson Blvd., Chicago 7, Ill.
RUSH details of Bonus Suit Offer and money-making plan, including FREE sales kit and sample line.

Name.....Age.....
Address.....
City.....Zone.....State.....

Amazing Attachment For Thermostat

AUTOMATICALLY TURNS HEAT UP 10° EVERY MORNING!

—and down every night!

- **No Installation—Mounts Anywhere!**
- **Saves Double Its Cost in Fuel Every Year!**

only $12.95

Now you can sleep in refreshing coolness, save fuel, and wake up to a comfortably warm house. New Magic Brain turns heat up to normal at 6 a.m. every morning—turns it down 10° every night. Works automatically—set it once and forget it. Operates on 110-120 standard household a.c. outlet. Safe—UL approved. Money back in 10 days if not delighted. Order NOW!

COLLOID EQUIPMENT CO., Dept. PS-1, 50 Church St., New York 7, N. Y.

INSURED TIRE SERVICE
POPULAR BRANDS

FREE INSURANCE POLICY given with each used tire sold. We guarantee the amount of service you pay for.
Tube Given Free with Each Used Passenger Tire Upon Request

SPECIAL! Deduct 10% on orders for Two or More used tires

YOU CAN'T LOSE!!

Super Quality — Rugged Performance — 15 Months Insured Service							
600x16	$4.55	670x15	$5.25	700x16	$5.55	760x16	$6.35
650x15	4.95	670x16	5.35	710x15	5.45	820x15	6.45
650x16	5.45	700x15	5.40	760x15	5.95	550x17	4.75
Supreme Quality, Nothing Finer — 30 Months Insured Service							
450x20	5.95	450x21	6.25	700x15(6)	10.45	750x16(8)	15.95
600x16	5.65	650x15	5.75	600x20	10.95	900x20	19.95
650x16	5.85	670x15	5.95	650x20	11.75	1000x20	20.45
700x16	7.75	700x15	5.75	700x20	12.50	1100x20	26.75
750x16	12.50	710x15	6.50	32x6(8)	11.95	1000x22	19.50
550x17	5.75	760x15	6.95	32x6(10)	12.75	1100x22	24.75
525x18	5.45	820x15	7.50	750x20	14.50	1200x20	23.50
640x15	5.75	475x19	5.75	825x20	21.50	1100x24	22.75

SNOW TIRES
NO CHAIN PROBLEMS
"Worry-Proof" Driving

600x16	10.95	670x16	11.75
600x15	11.45	700x15	13.95
640x15	11.45	700x16	14.95
650x15	11.95	710x15	13.95
650x16	11.95	760x15	14.95
670x15	11.95	820x15	15.95

NEW TIRE GUARANTEE

MIDLAND TIRE SALES
1141 W. Randolph St., Dept. SS-3, Chicago 7, Ill.
Speedy shipments on Mail Orders. F.O.B. Chicago. Insurance Policy sent with each order. Deduct 10% on orders for 2 or more used tires. Send CHECK or MONEY ORDER. No COD's.

LEARN TO DANCE $1.00

Why be a lonely, unpopular wall-flower? Learn all the smart dances from the most modern to the old favorites—at home, in private without teacher, music or partner. Simple even a child can learn quickly. Tap dancing, Waltz, Collegiate, Samba, Rhumba, Jitterbug and many others, including illustrations. Complete course only $1.00. Also, delightful old square dances with illustrations for $1.00. Get each Separate or both for $1.98. If you order both take your choice of FREE-DREAM BOOK or LOVE LETTERS. C.O.D. orders 25c extra and Postage.

Superior professional taps, both toes and heels $2.98 prepaid or C.O.D. plus shipping charges. State size, large or small.

ROLLDEX, P. O. Box 516, Dept. D-85, Safety Harbor, Fla.

LEATHERCRAFT and many other crafts

SHELLCRAFT • easy to do

TEXTILE PAINTING • profitable too

Send for FREE BIG CATALOG TODAY

• complete supplies

• everything you need

KIT KRAFT • 7373 Melrose Ave. Dept. 39, Hollywood 46, Calif.

MEN PAST 40

Men afflicted with Bladder Trouble, Getting Up Nights, Pains in Back, Hips, Legs, Nervousness, Dizziness, Physical Inability and General Impotency send for our amazing **FREE BOOK** that tells how you may correct these conditions and have new health and Zest in Life. Write today. No Obligation.

Excelsior Institute, Dept. B-5, Excelsior Springs, Mo.

D-M "POCKET-PAL" RADIO

- Hearing-aid size portable
- Fits in your shirt pocket
- Enjoy as you walk along anywhere
- Tiny flesh color hearing-aid tone
- Covers standard broadcast band
- Walkie-Talkie type reflex circuit
- Received over 1,500 miles in test
- Pat. built-in ferri-rod antenna
- Two miniature high-gain tubes
- New long-life mercury battery
- Picture diagram for radio beginner

Not a toy or gadget. A real ruggedly built self-contained portable. No clips or wires to attach to anything. Perfect for play-by-play at sport events. Ideal for use in bed, office or on outings. Beautiful unbreakable aluminum case, tiny control knobs, bakelite chassis with battery clips, hearing-aid resistors, condensers, volume control with switch, variable tuning condenser, etc. Complete prefabricated kit that anyone can assemble in one evening ONLY $9.95 postpaid. Tubes included but less batteries. Midget batteries $1.75 per set. Hearing-aid ear button available from us at low cost or use any type earphone. Nothing like this set available elsewhere.

Patent Pending

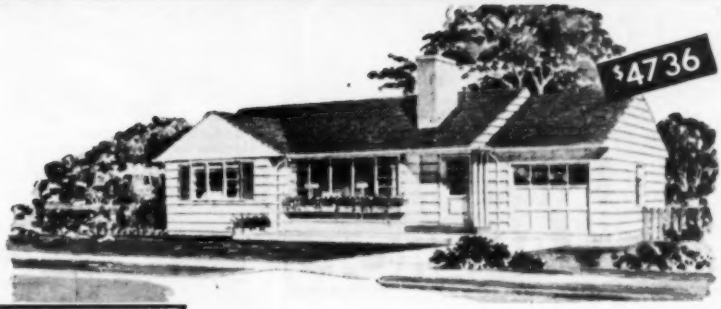
$9.95 Post paid

All sets fully guaranteed. ORDER TODAY—NOW!

ELECTRONIC MINIATURES
162 ORLEANS CIRCLE NORFOLK 9, VIRGINIA

Build A MODERN READY-CUT HOME! Costs You Less!

Shipped Direct from Our Mill



Liberty Homes

39 Designs to Choose From

AS LOW AS..... $2180

Recommended by Banks and Building and Loan Associations

Save 30% to 40% on Your New Home..

Don't pay several hundred dollars more than necessary when you build a home! Buy direct from our mill at our low factory price. We ship you the lumber cut-to-fit, ready to erect. Paint, glass, hardware, nails, etc., all included in the price—no extra charges. Plans furnished—also complete building instructions. No wonder our customers write us that we saved them 30% to 40%. Architecturally approved construction. (Not prefabricated.)

Visit a Liberty Home!

Many thousands of Liberty Homes have been built in all parts of the country. There is one near you that you can visit and inspect. Write us and we will give you its location.

Handsome Big CATALOGUE

Pictures wonderful homes in colors at money-saving prices. Designs to suit everyone. Send 25c for catalogue today.

BIG BOOK of House Plans in Colors 25¢

LEWIS MANUFACTURING CO. 1331 LAFAYETTE AVE., BAY CITY, MICH.

LEARN DRAFTING TODAY'S ESSENTIAL JOB

CLEVELAND ENGINEERING INSTITUTE

It's Easy—At Home In Your Spare Time

There is a growing, desperate need for draftsmen—the key men in all industry. CEI can quickly give YOU the necessary technical skill. Bigger income, jobs, and opportunities are yours with a CEI diploma. Thousands have succeeded. So can you! CEI guarantees to train you until you qualify. Get full success story. Write today!

You Get This Professional Set of Instruments at no Extra Cost

Cleveland Engineering Institute
Extension Division PS1C
6300 Euclid, Cleveland 3, Ohio

☐ Aeronautical ☐ Mechanical

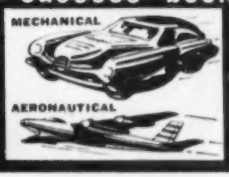
NAME.....

ADDRESS.....

CITY.....STATE.....

No Obligation—No Salesmen

FREE success book



CLEVELAND ENGINEERING INSTITUTE

BUILD IT FIX IT with AMBROID

- Ready-to-use
- Fast drying
- High tensile strength
- Transparent
- Waterproof

IT STAYS STUCK

Dries entirely by evaporation of the solvent. Quick setting—no distortion. Ideal for assembling, repairing, home crafts, electrical work, factory, workshop or household use. Send postcard for free literature.

Try Ambroid in your business, too. For over 40 years recognized as the leading industrial adhesive of its type.

Art galleries, museums, and leading industrial concerns, rely on AMBROID

TRY A TUBE TODAY—At most hardware stores and hobby shops. If your dealer cannot supply you, send 25c for big 2 oz. tube, postpaid. Money back guarantee.

AMBROID 306 FRANKLIN ST. BOSTON 10, MASS.

EASY TO PLAY

"EXTRA-VALUE"

New! PAN-AMERICAN Super BRASSES, SAXOPHONES

Sensational Pan-American instruments, used in bands and orchestras everywhere! Fully guaranteed. Exclusive features. See your dealer, or write for literature. Mention instrument. Address Dept. 104

Write FOR FREE FOLDER

PAN-AMERICAN BAND INSTRUMENTS
Division of C. G. CONN Ltd., Elkhart, Ind.

PROFITABLE
HOME BUSINESS
SPARE OR FULL TIME

THIS HOME CRAFT PAID ME $1,500 FOR A SINGLE ORDER

LEARN FROM EXPERIENCED INVISIBLE REWEAVER HAVE YOUR OWN REWEAVING STUDIO AT HOME. Reweaving Burns, Tears, Moth Holes, Etc. — LIKE NEW. Big profit orders come from Homes, Cleaners, Dept. Stores—also mail orders. Up to $5 an hour possible, spare time. No previous experience or expense for materials. Examine complete instructions at home, without risk. **FREE** details—write **NOW**. SKIL-WEAVE, Suite 221, 1717 Westwood, Los Angeles 24

MEN! Do You Suffer FROM

Pains in Lower Back, Hips and Legs; Low Vitality, Nervousness, Irritability, Night-Rising, Bladder Trouble, Forgetfulness, Sleeplessness; Weak, "Worn-Out" Feeling and a General Decline in Health? If so, then send for our Free "facts" booklet containing much information of value to you. Booklet is mailed together with Questionnaire Blank in plain wrapper. **Don't Delay!** Send for your copy Now! NO OBLIGATION.

MAIL THIS COUPON

MILFORD SANITARIUM, Box P5
MILFORD, KANSAS

Gentlemen: Please send me your **Free "Facts"** Booklet and illustrated **Health Questionnaire.**

NAME.....AGE.....
ADDRESS.....
CITY and STATE.....

HASTINGS
STEEL-VENT PISTON RINGS
The best money you can spend on your car

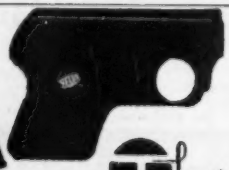
NEW AUTOMATIC DEFROSTER

ONLY $7.95—YOU MAKE UP TO $4.00 ON EVERY FAST SALE. New low cost attachment converts any old style refrigerator into automatic defroster in 10 seconds! Just plug in. New guaranteed HOLWIN at $7.95 breaking all records. Men selling up to 10 and 12 a day and more—pocketing as much as $4.00 cash on every sale! Sells 4 out of 5 calls. FREE—Rush name for free sales kit and offer of Demonstrator Sample.

DEFROSTER SALES CO., 415 N. LaSalle St., DEPT. H-97 • CHICAGO 10, ILLINOIS

When Writing to Advertisers, Please Mention Popular Science

GERMAN PRECISION 22 BLANK PISTOL



SIX SHOT REPEATER AUTOMATIC

For fun . . . sports . . . protection against night prowlers! Precision made in the high traditions of German guncraft! Exact dimensions, finish and design of death-dealing automatics. Uses only .22 cal. harmless blanks. Specially designed chamber gives terrific percussion audible at enormous distances, enough to frighten the daylights out of any "character." 6 shot fully automatic magazine. Empties ejected automatically. Safety catch. Carbon steel construction; de luxe CORDOVAN handle. No police permit needed. Cartridges available everywhere for about 1c. Remit only 9.95 for quick prepaid delivery. (COD's plus post.) Money back guarantee.

Thoresen 140 Fifth Ave., Dept. 7-A-111, New York 11, N. Y.

MAKE ELECTRONICS WORK FOR YOU!

DON'T MISS THIS AMAZING OFFER

Here's the most comprehensive information ever published concerning the things you can do with crystal diodes. Complete instructions for building electronic door locks, charger for dry batteries, pocket stroboscope, door bell booster, remote control for electric trains . . . and scores of other devices. Don't delay, supply of these books is limited!

104 fascinating circuits . . . Easy-to-follow diagrams and instructions.

Three books now only **50¢**

Send your half-dollar now to: Sylvania Electric Products Inc., Dept. 3E-3801, 1100 Main Street, Buffalo, N. Y.

RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; FLUORESCENT TUBES, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; PHOTOLAMPS; TELEVISION SETS

SYLVANIA

KOREAN VETS!

Now you can attend one of the world's most famous aeronautical colleges under Public Law 550.
B.S. degree in 3 yrs. from Saint Louis University — Aero. Eng., Maint. Eng., Aero. Adm.

Write today for full details

PARKS COLLEGE DEPT. S-13 EAST ST. LOUIS, ILL.

STUDY AT HOME LAW FREE BOOK!

Prepare for the Bar!

Write today for a copy of our FREE book, **"The Law-Trained Man,"** which gives the bar rules in your state and tells how ambitious men and women since 1890 have been preparing at home in spare time for the practice of law by studying the famous Blackstone bar-training course. All needed instruction material is furnished including big 16-volume law library. Law diploma awarded. Moderate tuition; easy monthly terms. Write for FREE book today!

BLACKSTONE SCHOOL OF LAW
225 N. Michigan Ave., Dept. 121, Chicago 1, Illinois

WORK CLOTHES BARGAINS!

Special Offer

FREE 10 DAY TRIAL

WORK SHIRTS 79¢ 3 for $2.29
Blue, Tan, White
Measure Neck & Arm

WORK PANTS 99¢ 3 for 2.69
Blue, Tan, White
Measure Waist & Leg

SHOP COATS $1.79 3 for $5
Blue, Tan, White
Send Chest Measure

COVER ALLS $1.98 3 for $5.94
Blue, Tan, White
Send Chest Measure

WHAT A BUY! Surplus stock from a big midwest supply firm makes these gigantic savings available to you! Sturdy, serviceable work clothes, though used, have been washed, thoroughly sterilized and reconditioned. Every garment made of long-wearing wash materials, strongly sewn, with reinforced stitching at points of strain. When ordering please state measurements under item.

SEND NO MONEY! Just send name, complete address, clothing desired (state how many of each), and your color choice (also 2nd color choice). We will ship immediately. Pay postman, plus postage when your order arrives. Or, enclose cash, check or money order, and We Pay Postage. Keep 10 days. Return for full refund of purchase price if not completely satisfied. Order TODAY at our risk!

YOUNG DISTRIBUTING CO. Dept. 1032 2605 Elmhurst, Detroit 6, Mich.

BREED *Rare* TROPICAL FISH

EARN BIG MONEY IN SPARE TIME

IT'S EASY!
Once you learn the fascinating secrets you can breed: "Tetras" that LIGHT UP like Neon Signs. "Gourami" that are 12 DIFFERENT COLORS. "Fighting Fish" THAT FIGHT UNTIL DEATH. "Zebra Fish," – hundreds of Beautiful Rare varieties. *Fabulous Profits possible!* Mail Order Plan

AMAZING NEW HOME–BUSINESS! WONDERFUL OPPORTUNITY! FASCINATING ADVENTURE once you know the "Secrets" of breeding and selling rare Tropical Fish. Some sell for $75 pair and more! NO BIG INVESTMENT – NO EXPERIENCE NECESSARY! It's fun to breed expensive fish in your home, basement, or garage. Takes only minutes per day. Earn extra money in leisure time once you know how. *We supply everything you need.*

GET INTO PARTNERSHIP WITH NATURE. Let Nature Multiply your profits for you. Some Fish lay 500–600 eggs at one time.

HELP FILL HUGE DEMANDS–from Stores, Hotels, Interior Decorators, Schools, Restaurants, Offices, Theatres, Doctors, etc. etc. Also over 20,000,000 Tropical Fish fanciers in the U. S. to sell to! *No big Companies to compete with.* Amazing opportunities for Home Breeders or Full-Time Breeders.

YOUR "CHANCE OF A LIFETIME" OPPORTUNITY. If you wish to combine pennies with spare time–to *make dollars in profit.*

HOME-BUSINESS PLAN

FREE! Complete Illustrated Home – business plan, colorful Breeding Brochure, Reprints, etc., etc.

WRITE: TROPICAL FISH BREEDERS OF AMERICA
Dept. C-1, Los Angeles 15, Calif.
Rush everything free to:
Name _____
Address _____
City _____ State _____

SEA SHELL KIT BOAT

only $39

More than 32,000 in use. Kit includes pre-cut marine plywood and wood parts, brass screws, seam compound, full instructions. A rugged boat, easy to assemble. Free booklet.

Sea Shells of Branford
7170 N. Main Street
Branford, Conn.

In Canada
Roberts-Ross, Ltd.
Orillia, Ontario

DEVELOP A STRONG HE-MAN VOICE

STRENGHTEN *your* voice this tested *scientific* way. Yes—you may now be able to improve the **POWER** of your speaking and singing voice—and in the privacy of your own room! Self-training lessons, mostly silent. No music required.

WRITE TODAY FOR FREE BOOK

Eugene Feuchtinger's great booklet "How to Develop a Successful Voice." It's absolutely FREE! You must state your age. Booklet mailed postpaid in plain wrapper. No salesman will call. Send your name, age now!

PREFECT VOICE INSTITUTE
210 S. Clinton St., Studio AX-1 Chicago 6, Ill.

TOOLS AT WHOLESALE

PROFESSIONAL MECHANICS HAND TOOLS
Farm, Household and Special Tools
TOP QUALITY, FACTORY GUARANTEED

Write Today for FREE CATALOG

MECHANICS CO-OP
Dept. W Oakland 8 Calif

MEN! TRAIN NOW FOR A BIG PAY FUTURE IN DIESEL & SCIENTIFIC MOTOR TUNE-UP

- Diesel Construction
- Diesel Engine Repairman
- Diesel Operator
- Industrial Maintenance
- Auto Engine Rebuilding
- Bus & Truck Maintenance

Be a Trained Diesel Man

Go places with DIESEL! Farms, factories and power plants, trains, ships, trucks, buses all use DIESEL POWER . . . all need DIESEL-trained men! You can start your DIESEL training at home, in spare time, with tested, proved U E I training. Course includes practical work on Diesel engines under skilled instructors. You learn the operation, maintenance, servicing of all types of Diesel engines, PLUS Scientific Motor Tune-up.

ACT NOW! If you have mechanical ability, *you'll like Diesel!* High School diploma not necessary. Write now for FREE book, "EARNING POWER IN DIESEL." Act Today!

MAIL NOW FOR FREE BOOK!

UTILITIES ENGINEERING INSTITUTE, Dept. DM-18,
2521 Sheffield Ave., Chicago 14, Ill. (Founded 1907)
O. K.! Rush, without obligation, FREE Book on DIESEL.

NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____
☐ Check here for information if under 17.

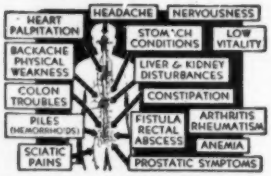
HYPNOTISM

Learn to apply this tremendous POWER. Develop will-power, self-confidence, self-control. ANYONE can master this exciting profitable profession in short time by training at home, with GUARANTEED RESULTS. DON'T DELAY . . . Write to America's oldest Hypnotic school for free information now—today!

INSTITUTE OF APPLIED HYPNOLOGY
Dept. 21, 120 Central Park So., N. Y. 19, N. Y.

Piles May Lead to Chronic Ailments

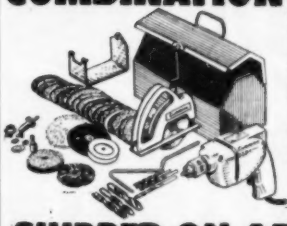
FREE BOOK—Explains the Cases and Effects



No obligation. Write to Thornton & Minor Hospital, Suite 149, 911 E. Linwood, Kansas City 9, Mo.

The New Improved Model 38-98

DYNAMIC POWER TOOL COMBINATION



INCLUDES: Cummins 1/4" Pistol-Grip Electric Drill; Cummins Saw Attachment; Combination Saw Blade; Set of Drills; Lambs Wool Bonnet; 13 Sanding Discs; Steel Arbor and Attachments; Cloth Buffing Wheel; Grinding Wheel; Wire Wheel Brush; Steel Paint Mixer; Steel Bench Stand; Portable Steel Carrying Case.

Price of Dynamic Power Tool Combination complete is $29.95

SHIPPED ON APPROVAL

No Money With Order — No C.O.D.

Try it ten days before you buy. If completely satisfied then send $4.95 and pay balance at rate of $5.00 per month for 5 months — No Interest or Carrying Charges Added. If not completely satisfied, return to us, no explanation necessary.

KAPNER HARDWARE, INC.

Dept. A-60, 2248 Second Ave., New York 29, N.Y.

Wake Up To More Comfort

Without Nagging Backache

Nagging backache, loss of pep and energy, headaches and dizziness may be due to slowdown of kidney function. Doctors say good kidney function is very important to good health. When some everyday condition, such as stress and strain, causes this important function to slow down, many folks suffer nagging backache—feel miserable. Minor bladder irritations due to cold or wrong diet may cause getting up nights or frequent passages.

Don't neglect your kidneys if these conditions bother you. Try Doan's Pills—a mild diuretic. Used successfully by millions for over 50 years. It's amazing how many times Doan's give happy relief from these discomforts—help the 15 miles of kidney tubes and filters flush out waste. Get Doan's Pills today!

CIGARS FACTORY FRESH

Mild and Flavorful

Choice tobacco. Fine smoking. Low cost. 10c size. Box of 50 $3.00. Two boxes $5.50. Postpaid. Get **fresh cigars** and save money. Send check or currency today. Money back guarantee. You will like them. Or try four—send quarter.

ESQUIRE CIGAR FACTORY

5514N EASTON AVE. ST. LOUIS 12, MO.

MEN—WOMEN, LEARN

GEM KRAFT

MAKE GOOD MONEY AT HOME

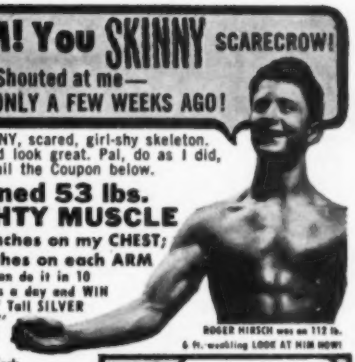
AMAZING NEW BIG $$$ HOME-BUSINESS

Now, at last you can start a big-profit gem business at home. The secrets are out. Make valuable gem settings, bookends, novelties, jewelry and other big demand articles *from materials you find.* Amazing ground floor profit opportunities with unlimited future. No previous experience needed. Learn at home. *Start at once,* spare or full time. Good profit orders come from stores, friends, exhibits — even by mail order. Profits of $6 an hour *and over,* possible at home. Certificate awarded upon satisfactory completion of course. Complete instructions show you where to find **FREE** valuable gems, how to identify them, how to cut and polish, how to make your gems into jewelry, and how to sell at big profits! **FREE** details. Write NOW. Airmail reaches us overnight.

GEM KRAFTERS, Dept. 31, 1717 Westwood, Los Angeles 24, Calif.

SCRAM! You SKINNY SCARECROW!

The boys Shouted at me— ONLY A FEW WEEKS AGO!



"I was a SKINNY, scared, girl-shy skeleton. Now I feel and look great. Pal, do as I did, right NOW! Mail the Coupon below.

I gained 53 lbs. of MIGHTY MUSCLE

6 1/2 inches on my CHEST; 3 inches on each ARM

You can do it in 10 minutes a day and WIN This 15" Tall SILVER TROPHY"

ROGER HIRSCH was an 112 lb. 6 ft. weakling LOOK AT HIM NOW!

Roger D. Hirsch New York

MAN! aren't YOU as SICK and TIRED as I and thousands of MIGHTY JOWETT HE-MEN were of being SKINNY?

Come on, Pal, Give me 10 pleasant minutes of fun a day and I'll give YOU a NEW HE-MAN BODY for your Old Skeleton Frame.

NO! I don't care how skinny or flabby or how young or old you are I want to MAKE YOU OVER by the SAME METHOD I turned myself from a wreck to a Champion of Champions.

YES! You'll see INCH upon INCH of MIGHTY MUSCLE added to YOUR ARMS. Your CHEST deepened. Your BACK AND SHOULDERS broadened. You'll gain SOLIDITY, SIZE, POWER, SPEED! You'll become an ALL-American HE-MAN, a WINNER in everything you tackle—or my Training won't cost you one cent!

Develop YOUR 520 MUSCLES! Gain Lbs., INCHES, FAST!

Friend, I've made a LIFETIME STUDY of every way known to develop your body. Then I devised my "5-WAY PROGRESSIVE POWER" the only method that builds you 5-ways fast. You save YEARS and DOLLARS by Mailing Coupon NOW.

"IN 90 DAYS You changed me from a SKINNY wreck to a **MIGHTY HE-MAN.** With ONE hand I can NOW lift overhead a boy weighing 115 lbs." Jackie Jackson Jr. ARK.

"10 Minutes a day and I am a **NEW STRONG MAN!** I have a big **49** in. **CHEST,** powerful **17** inch **ARMS** a **32** inch **WAIST.**" Felipe Mendoza —Cal.

GEORGE F. JOWETT Champion of Champions

FREE if you mail COUPON NOW
1. MUSCLE METER
2. JOWETT'S Photo Book of Famous Strong Men—"Nerves of Steel, Muscles of Iron," packed with photos of miracle he-men whom Jowett guided from weaklings to muscular power. Read thrilling adventures of Jowett, himself. Mail Coupon NOW!

AMAZING ALL-5 Picture-packed courses while the supply lasts—only **10¢**

MILLIONS SOLD at $1 and more

PHOTO BOOK FREE How To Achieve NERVES OF STEEL, MUSCLES OF IRON

FREE PHOTO BOOK of Famous Strong Men and a MUSCLE METER

Dept. PS-31

"Jowett Courses greatest in World for Building All-Around HE-MEN." —R. F. Kelley Physical Director

JOWETT INSTITUTE OF PHYSICAL TRAINING
220 FIFTH AVENUE, NEW YORK 1, N. Y.

George: Send me FREE Photo Book of Strong Men, a Muscle Meter, plus all 5 HE-MAN Building Courses: 1. How to Build a Mighty Chest; 2. Mighty Arm; 3. Mighty Grip; 4. Mighty Back; 5. Mighty Legs—all in One Volume "How to Become a Mighty He-Man." I enclose 10c. (No C.O.D.'s)

Name ..... Age .....
(Please print plainly)
Address .....
City ..... Zone ..... State .....

CASH IN on the ELECTRICAL AGE ahead!

Every day more jobs are done—more things are run—by electricity. It means more demand, bigger pay, for electricians supplying all the equipment for the electrical age—installing it—keeping it running. Train easily, inexpensively, for this growing job opportunity. Invest some of your spare time in the

These books build the know-how and skill you need

ELECTRICIANS' PRACTICAL LIBRARY

6 vols., 2700 pages, over 1600 illustrations and diagrams, many tables. A master home-study set and reference library.

These great books enable you to do all kinds of practical electrical jobs—better yet, give what you need to solve job problems when "cook-book" methods won't work. They give you a.c. and d.c. fundamentals—electrical math, from simple wiring formulas to complicated circuit solutions—methods of planning and doing wiring jobs, in home, farm, and industry—working knowledge of generators, motors, converters, controllers, etc.—even grounding in industrial electronic tubes, circuits, and operations. Everything plainly worded and clearly pictured. Train for bigger pay with these books now—use them for handy reference for years after.

10 DAYS' FREE EXAMINATION—EASY TERMS

McGraw-Hill Book Co., Dept. PS-1, 327 W. 41 St., N.Y.C. 36

Send me Electricians' Practical Library for 10 days' Free Examination. In 10 days I will send $3.50, then $5.00 monthly till $28.50 is paid. (A saving of $5.00 under regular price of $33.50.) Otherwise I will return books postpaid.

(PRINT)

Name.....

Address.....

City.....Zone....State.....

Employed by.....PS-1

1903—GOLDEN ANNIVERSARY—1953

SHAW "DU-ALL"

GARDEN AND SMALL FARM TRACTORS

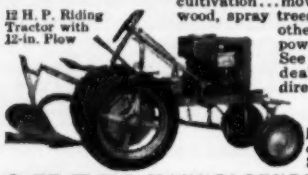
Low Cost 1½ to 5 H.P. Walking Models Do All Garden and Yard Work ..Fast, Easy

5 H.P. Walking Model with 10-inch Plow

Plow with a 6-7-10 inch plow ...plant, cultivate ... mow, bulldoze, saw wood ... do many other jobs with the Shaw Du-All. 1½, 2½, 3, 5 H.P. machines. Variable speeds, adjustable wheel widths, individual gang tool controls. Power take-off pulley and attachments. Power turn models available.

Powerful 5-8-12 H.P. Riding Tractors, Ideal for Larger Acreage

Famous Shaw design provides lowest cost power for small farms. Handle 10, 12, 14-inch plows. Work 4 to 8 acres daily. Handle all ground preparation and cultivation...mow, rake, cut wood, spray trees, do many other jobs with power take-off. See the Shaw dealer. Write direct for



12 H.P. Riding Tractor with 12-in. Plow

FREE CATALOGS low prices complete Shaw line.

SHAW MANUFACTURING CO.
5701 Front St., Galesburg, Kansas
668-PS N. 4th St., Columbus, Ohio

EASE COLD MISERY

Take Tabcin

AT ALL DRUG STORES • 45c and 75c SIZES

AD-B

$2.98 Each

REVERSIBLE AUTO SEAT COVERS

ORDER FROM MFR. AND SAVE

Colorful SNAKE AND ZEBRA DESIGN And LEOPARD-COWHIDE DESIGN. Can Be Used On Either Side. Water And Stainproof. Tailored With Side Grip Panels For Tight Fit. Sewn With NYLON Thread For Long Wear. Simple To Install. Dress Up Your Car With A Set Of Either Of These Colorful Expensive Looking Covers!

10 DAY MONEY BACK GUARANTEE

Choice Of SPLIT Or SOLID Front Seat Only $2.98. Complete Set For Both Front & REAR ONLY $5.00. When Ordering Specify Choice Of Design Wanted, Make of Car And Seat Style. Enclose Payment And Save Postage Or Sent COD.

MARDO SALES CORP. Dept. DS-968
480 Lexington Ave., New York 17, N. Y.

SILVER SOLDER TORCH & KIT $7.95 Post Paid

Joins All Metals Permanently

EQUAL TO WELDING FOR MOST PURPOSES

IDEAL FOR ALL REPAIRMEN, HOBBYISTS, GUNSMITHS, ETC. Kit includes one tube silver solder flux and 12 5-in. lengths silver solder alloy. Hottest ALCOHOL TORCH known. 2700° F. flame. Operates in any position, indoors or out. Pint of special fuel included. TORCH alone with pint of special fuel $6.85. KIT alone $1.65. Complete instructions included.

AMERICAN PRODUCTS CORP., 422 S. Dearborn St., Dept. 2-A, Chicago 5

Bar Bells

BUY DIRECT FROM FACTORY
Write for free booklet and price list

$8.95 up

INDEPENDENT IRON WORKS
2416 East 23rd Street, Dept. "C"
Los Angeles 58, Calif.

COLD ROOMS?

HIGH FUEL COSTS?

FURNACE BLOWER—LIMITED TIME!

Install in your cold air return, high volume blower, quiet belt drive, long hour duty motor, thermo overload, protected sight feed oil gauge, balance blower wheel, adjustable motor pulleys, self-aligning bearings.

$26.95

Blower, complete with Mtr. & Drive $44.95

FANS

Kitchen Ventilators, Exhaust Fans, Attic Fans, Blowers, Heat Boosters, $7.95 up, Desk Fans, Window Fans, Blades, Guards, Shutters, Motors, etc.

Dealer inquiries invited

EDWARDS BROS. ESTAB. 20 YEARS

WESTAIR FAN AND BLOWER CO.
5650 Grand River Ave., Dept. 8, Detroit 8, Mich.

FULLY GUARANTEED TIRES COST LESS!

Nationally famous **FIRESTONE, GOODRICH, U.S. ROYAL, GOODYEAR,** and other makes. Every tire selected and inspected for your safety.

SALE — PENNA'S LARGEST STOCK

FREE TUBE WITH EVERY PASSENGER TIRE

NEW TREAD TIRES GUAR. 24 MOS. (MUD & SNOW TIRES $1. EXTRA)

550x16	7.98	600x16 (6)	9.98	650x20 (8)	19.95	700x16 (6)	14.48
550x17	7.98	650x15	9.98	640x15	8.98	710x15	10.48
600x18	7.98	650x16	10.48	670x15	9.98	760x15	11.48
600x16	7.98	650x16 (6)	12.48	700x15	11.48	820x15	12.98

GOOD TIRES GUARANTEED 12 MONTHS

600x16	4.14	700x16	5.14	32x6 (8)	8.84	825x20	14.24
650x16	4.54	670x15	4.74	32x6 (10)	10.84	900x20	13.34
650x15	4.34	650x20	7.84	750x20 (8)	8.54	1000x20	14.14
700x15	4.64	700x20 (8)	8.94	750x20 (10)	9.94	1100x20	16.14

AAA PREMIUM GRADE GUARANTEED 18 MONTHS

550x15	5.48	700x15	5.98	760x15	5.58	750x20 (10)	14.98
600x16	5.28	700x16	6.78	550x17	9.48	825x20	18.68
600x16 (6)	6.58	700x16 (6)	7.98	600x20	9.78	900x20	18.98
640x15	5.68	750x16 (6)	8.98	650x20	10.88	1000x20	19.98
650x16	5.78	800x15	6.88	700x20	12.88	1000x22	21.98
650x16 (6)	6.98	820x15	7.48	32x6 (8)	10.48	1100x20	20.98
650x15	5.98	710x15	6.09	32x6 (10)	12.48	1100x22	21.98
670x16	6.18	890x18	8.98	750x20 (8)	12.98	1100x24	23.98

MILITARY SPECIAL

AA Guaranteed 12 Months—

900x15	10.69	900x20	19.98
750x20	10.98	1100x20	21.98

AAA GUARANTEED 18 MONTHS

900x16 14.98 • 750x20 16.48

NEW Tread Guar. 24 Mos.

600x16		8.98
600x16	(6)	9.98
700x15	(6)	15.95
750x20	(8)	24.98

Largest stock of used tires in the East. Thousands of satisfied customers. Write for sizes not listed. MONEY ORDER OR CHECK WITH ORDER. NO C.O.D.'s

PYRAMID TIRE CO.
1333-35 North 5th St.
Dept. S., Phila. 22, Pa.

FOR BIG MEN ONLY!

SIZES **10 to 16** WIDTHS **AAA to EEE**

We SPECIALIZE in large sizes only—sizes 10 to 16; widths AAA to EEE. Loungers; Dress Oxfords; Moccasins; Cushion Crepe; High and Low Work Shoes; Slippers; Rubbers; Overshoes; Sox. Enjoy the finest in fit, comfort, style at amazingly low cost. Sold by mail only. Write for FREE Style Book *TODAY!*

SEND FOR FREE CATALOG

KING-SIZE, Inc., 173, Brockton, Mass.

NEW! CHEAP! OIL BURNER SWEEPING THE COUNTRY!

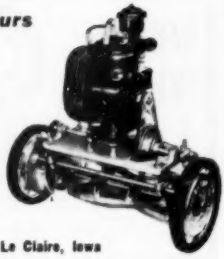
SALESMEN BIG MONEY

SLIPS INTO ANY COAL RANGE, STOVE OR FURNACE

Amazing quick, intense heat. By finger-tip control. Cheaper than coal. No more shoveling coal or ashes. SENT ON TRIAL. Prove it pays for itself quickly by what it saves. $1 bonus for testing. We'll let you try one in your own home for one month. Write for details today. **NORTHWEST MFG. CO., 361-A Main, Mitchell, S. Dak.**

Convert Hand Mowers to Power Mowers

Takes Less Than 3 Hours



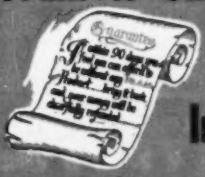
The Handy-Dandy Lawn Mower Kit fits any hand mower from the 16 to the 20 inch size. Complete with all necessary parts. Kits can be purchased separately, complete with engines or complete with Pennsylvania mower.

Also manufacturers of complete power mowers and garden cultivators, both reel and whirl type power mowers, with Leaf Mulcher and Snow Sweep.

LE CLAIRE MFG. CO., Dept. PS, Le Claire, Iowa

Fram Filters

are designed to the specifications of the engineers who designed your car.

Fram gets oil cleaner, faster, and keeps it clean longer than any other make. Only Fram is unconditionally guaranteed.  Insist on Fram next time you change your cartridge.

FRAM
OIL • AIR • FUEL • WATER
FILTERS

FRAM CORPORATION
Providence 16, R. I.
In Canada:
J.C. Adams Co., Ltd.
Toronto, Ont.

Call Western Union by number, and ask Operator 25 for the name of your nearest Fram Dealer.

Learn this Profitable Profession

IN 90 DAYS AT HOME

Money-Making Career Open to Men and Women, 18 to 60

Hundreds of men and women between 18 and 60 make $10 to $20 in a single day giving scientific Swedish Massage and Hydro-Therapy treatments. There is big demand from doctors, hospitals, sanatoriums and clubs. Graduates earn large full time incomes from these or in private practice in their own offices. Others make good money from home treatments given in spare time. Learn this interesting, money making profession in your own home, through our home study course. Same instructors as in our nationally known resident school. You can win independence and prepare for future security by qualifying for your Graduation Certificate. Course can be completed in 3 to 4 months. Many earn while they learn. Begin your training at once.

NEW 32-PAGE BOOKLET *FREE*

Fill in the coupon below (please print name and address) and mail it for your FREE copy of 32-page Information Booklet. If you act at once we will include Anatomy Charts and Success Booklet which supply additional information you should have. All will be sent postage paid.

THE COLLEGE OF SWEDISH MASSAGE
Dept. 370A, 41 E. Pearson St., Chicago 11, Illinois

Please send me FREE and postpaid New 32-Page Illustrated Booklet, Anatomy Charts and Success Booklet at once.

Name.....Age.....

Address.....

City.....State.....

"I DOUBLED MY INCOME IN LESS THAN A YEAR as a CUSTOM UPHOLSTERER"

Alvin Lederkramer, formerly low-paid Auto Mechanic, earned extra money while learning! Now has BIG PAY JOB!

NOW—You Can Become An Expert UPHOLSTERER AT HOME

Right at home in your spare time YOU can become a skilled, expert, always-in-demand upholsterer. Not only can you EARN WHILE YOU LEARN, but your course includes—FREE of extra charge—FOUR big shipments of tools, complete fra[illegible] all materials to make beautiful furniture that you can sell or use.

Record-breaking building, home buying, [illegible]efurnishing mean ever-increasing lifetime opportunities. You can [illegible]uickly step into a well-paid job—BE YOUR OWN BOSS, or make big spare-time money. Previous experience unnecessary. Our thorough, N. Y. State Approved, practical training qualifies you. You will actually be upholstering furniture almost AT ONCE! Course includes all phases of custom upholstery, furniture repair and finishing, plus 3 big EXTRAS—slip cover, window cornice and drapery making!

YOU MAKE

YOURS TO KEEP OR SELL

MAIL COUPON TODAY FOR BIG FREE BOOK

FREE book tells all about this ever-growing trade, explains how you learn quickly at home from experienced craftsmen.

UPHOLSTERY TRADES SCHOOL, Dept. BA-1601, 721 Broadway, New York 3, N. Y.
Send me FREE book on Home Study Course.

Name.....

Address.....

City.....Zone...State.....

☐ Check here if a Veteran

SENSATIONAL OPTICAL BARGAINS

IMPORTED 20X TELESCOPE AND TRIPOD

Machined threaded fittings throughout. Weighs 7 ounces. 6¾" closed length. 13½" open length. Achromatic objective lens low reflection coated on inside. Makes excellent spotting scope. Swivel-head tripod is collapsible. 9" high.

Stock #50,007-N (with Tripod)...$12.95 Pstpd.
Stock #50,006-N (without Tripod) $ 8.95 Pstpd.

SLIDE PROJECTOR SETS Consists of all unmounted lenses you need to make the following size projectors:

Stock #4029-N—35 mm. .....$2.85 Postpaid
Stock #4038-N—2¼"x2¼" .....$3.35 Postpaid
Stock #4039-N—2½"x3½" .....$3.35 Postpaid

SIMPLE LENS KITS—Include plainly written, illustrated booklet showing how you can build lots of optical items. Use these lenses in photography and for dozens of other uses in experimental optics, building TELESCOPES, low power Microscopes, etc.

Stock #2-N—10 lenses.....$ 1.00 postpaid
Stock #5-N—45 lenses..... 5.00 postpaid
Stock #10-N—80 lenses..... 10.00 postpaid

Order By Stock No. Send Check or M.O.

We Have Literally Millions of War Surplus Lenses and Prisms for Sale at Bargain Prices. Numerous Types of Instruments. Too! Write for FREE CATALOG-N

EDMUND SCIENTIFIC CORP., Barrington, N. J.

BEING PUSHED AROUND??

Why take any more nonsense from bullys, wise guys and other pests? The next time they try to act smart—give them the surprise of their lives! It's easy when you know POLICE JIU JITSU! This complete, fully illustrated course comes to you in one volume. The same as taught to police, marines, "G" men, soldiers, sailors and members of the U. S. Coast Guard. By all means, just pin $1 to this ad and we will send POLICE JIU JITSU to you postpaid by return mail. Satisfaction guaranteed or your money back

BOOKS PUBLISHING CO., 56 W. 24th St., N.Y. 10

EASY TO LEARN CODE

Learn or increase speed with an Instructograph—the Radio-Telegraph Code Teacher that takes the place of an operator-instructor and enables anyone to master code without further assistance. Available Letters from beginners alphabet to typical messages on all subjects. Speed range 5 to 40 WPM. Always ready—no QRM. Thousands have "acquired the code" with the Instructograph System. Write today for convenient rental and purchase plans.

INSTRUCTOGRAPH COMPANY
4701-P Sheridan Road, Chicago 40, Illinois

TREASURE -- $10,000

New locator detects metals, valuable minerals and buried treasure. Money-back guarantee of superiority.

Also geiger counters. Govt. reward of $10,000 for uranium discovery. Write for FREE information.

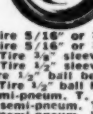
THE GOLDAK COMPANY
1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF.

RUPTURE!

An amazing Air-Cushion Invention allows body freedom at work or play. Light, neat, cool, sanitary. Durable, cheap. Day and night protection helps Nature support weakened muscles gently but surely. No risk. **Sent on Trial!** Write NOW for free Booklet and **Proof** of **Results.** All correspondence confidential.

Brooks Company, 374-A State St., Marshall, Mich.

Wheels Wheels Wheels Wheels



5" Disc Wheel ¾" Tire 5/16" or ⅜" sleeve.....30c ea.
6" Disc Wheel ⅞" Tire 5/16" or ⅜" sleeve.....35c ea.
7" Disc Wheel ¾" Tire ⅜" sleeve.....45c ea.
8" Disc Wheel 1⅛" Tire ½" sleeve.....70c ea.
7" Disc Wheel 1" Tire ½" ball bearing.....80c ea.
8" Disc Wheel 1⅛" Tire ½" ball bearing.....$1.00 ea.
8" Disc Wheel 2" semi-pneum. T. ½" B.B.....$1.50 ea.
10" Disc Wheel 1.75 semi-pneum. T. ½" B.B.....$1.50 ea.
12" Disc Wheel 1.75 semi-pneum. T. ½" B.B.....$1.85 ea.

Above wheel prices includes hub cap. Plus Postage. C.O.D.'s accepted.
AXLES—Sizes 5/16 in., ¾ in., ½ in.—Cut to size—End holes drilled.

UNITED WHEEL STAMPING CO.
12131 S. PEORIA STREET PS-1 CHICAGO 43, ILLINOIS

MEAT CUTTING OFFERS YOU SUCCESS And SECURITY

In The Best Established Business In The World · PEOPLE MUST EAT!

TRAIN QUICKLY in 8 short weeks for a job with a bright and secure future in the vital meat business. Trained meat men needed. Good pay, full-time jobs, year-round income, no lay-offs—HAVE A PROFITABLE MARKET OF YOUR OWN!

LEARN BY DOING

Get your training under actual meat market conditions in our big modern cutting and processing rooms and retail meat market. Expert instructors show you how—then you do each job yourself. Nearly a million dollars worth of meat is cut, processed, displayed and merchandised by National students yearly!

PAY AFTER GRADUATION

Come to National for complete 8 weeks course and pay your tuition in easy installments after you graduate. G. I. APPROVED. Diploma awarded. Free employment help. Thousands of successful graduates. OUR 28th YEAR!

FREE CATALOG—MAIL COUPON

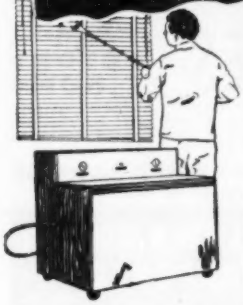
Send now for big new illustrated National School catalog. See students in training. Read what graduates are doing and earning. See meat you cut and equipment you work with. No obligation. No salesman will call. Send coupon in envelope or paste on postal card. Get all the facts NOW!

NATIONAL SCHOOL OF MEAT CUTTING, INC.
Dept. 51-N Toledo 4, Ohio

NATIONAL SCHOOL OF MEAT CUTTING, INC., Dept. 51-N, Toledo 4, Ohio
Send me FREE 52-page school catalog on LEARN-BY-DOING training in PROFITABLE MEAT CUTTING, SUCCESSFUL MEAT MERCHANDISING and SELF-SERVICE MEATS at Toledo. No obligation. No salesman will call.
(Approved for Training Korean Veterans)

Name..... Age.....
Address.....
City..... Zone..... State.....

BUILD A $15,000 A YEAR FUTURE!



IN THE EXCITING NEW BUSINESS OF LAUNDERING VENETIAN BLINDS

There is big money to be made cleaning Venetian Blinds and a permanent, fast growing, Lifetime Business, besides.

An amazing new kind of business of your own in a field that is growing like mad. Millions of Venetian Blinds need laundering at regular intervals. With our new patented machine, you can start small—using your basement, garage or utility room to begin with. You can expand as your business increases by leaps and bounds. Income up to $200.00 daily already being made by others. Small investment for equipment starts your own lifetime business—and monthly payment plan permits you to pay for it as you grow.

FREE Get all the facts about this sensational new kind of machine that launders blinds so fast that your charges are unbelievably low. People would rather send blinds to you than do the work themselves. Yet, you make 700% profit on every blind you clean. Get names of successful owners near you. Get details of the full amazing plan without obligation. Be first in your territory to start a business that has brought $15,000 PROFITS the first year to others. Wire today or send name on postcard.

VENETIAN BLIND LAUNDRY EQUIPMENT CO. INC.
442 N. SENECA ST. DEPT. 12-A WICHITA 12, KANSAS

SEND NO MONEY
•
MORE THAN 4000 PAGES
•
2750 PICTURES

9 BIG COMPLETE BOOKS BUILDING, ESTIMATING, CONTRACTING

Examine this Up-to-Date Edition for 10 days. See how these nine books supply easily understood training that will help you to get a *better job* and make *more money*, or start a profitable business for yourself. Think what a BIG help it will be to have them handy for use in solving all sorts of building problems.

Learn to draw plans, estimate, do all-new construction and modern remodeling to meet fast growing demand. More than 4000 pages of practical, pay-raising information with 2750 helpful illustrations, on such subjects as blueprint reading, concrete forms, masonry, carpentry, steel square, electrical wiring, plumbing, heating, painting, and *hundreds more*.

In our more than 50 years we have never offered more complete building information. Send the coupon TODAY.

(A year's consulting privileges with our engineers now given with these books without extra cost.)

AMERICAN TECHNICAL SOCIETY—Publishers Since 1898
Dept. G120, Drexel Ave. at 58th St., Chicago 37, Ill.

I would like to examine your 9-Volume Set of Building, Estimating, Contracting Books. I will pay the delivery charges only, but if I choose I may return them express collect. If after 10 days' use I prefer to keep them, I will send you $3 plus postage and pay the balance at the rate of only $4 a month until $34.80 has been paid. Include consulting service as offered above.

Name.....
Address.....
City..... State.....

Please attach letter giving employer's name and address. (If self-employed give business man reference). Men in service please give home address.

YOUR HIGH-PAYING

interesting career in

TELEVISION

starts here!

HOME STUDY COURSE

with one of America's largest schools

There's a place for YOU in the tremendous, billion-dollar Television, Radio & Electronics industry! It's so easy to get started with the famous CRESCENT SCHOOL course. Learn in your spare time . . . illustrated, simplified lessons and kits to practice on. No previous training needed. Send for FREE sample lesson . . . make this day the day you started on your way to a brilliant career!

Complete parts kits included. Build your own TV SET!

APPROVED FOR KOREAN VETS

Also day & eve. classes trained at our school

SEND COUPON TODAY!

CRESCENT SCHOOL Dept. A1
500 Pacific Street, Bklyn. 17, N. Y.

Sirs: Rush your FREE sample lesson and full details about the CRESCENT SCHOOL Course—at no obligation to me!
Home Study Course ☐ Residential Course ☐

NAME _____
ADDRESS _____
CITY _____ ZONE ____ STATE _____

ECONOMICAL! POWERFUL!

ELECTRIC MOTOR

GEAR BOX & POWER-PACK

EDUCATIONAL! FUN! SAFE!

ALL 3 FOR $2.98

Add many hours of pleasure to your hobbies. Let this POWERFUL Motor Kit drive model trains, boats, planes, carousels, cars, construction sets, etc. Get this amazing Power Kit. The motor is powerful yet measures only 1x1x1¼ inches. Turns up to 6,000 r.p.m.'s and it's instantly reversible with the new POWER-PACK which holds two standard flashlite batteries. The Power-Pack gives you remote control operation too! PLUS the outstanding Gear Box which gives you ratios up to 81 to 1.

This is the swellest little POWER UNIT ever made to run your model trains, turntables, fans, boats, draw bridges or whatever else you want to make GO. Imagine how many different ways you can hitch them up to run things . . . with gears . . . direct-drive and belt-drive arrangements. There's no end to their uses.

ORDER NOW! Be the first amongst your friends to own this POWERFUL MOTOR, GEAR BOX and POWER-PACK for only $2.98. (If batteries are desired, add 25c for two.) All will be sent to you by return mail. When postman delivers it, pay only $2.98 plus postal charges. If not completely satisfied, return it within ten days and your money will be refunded in full. ACT NOW! Send check or money order and save on postage!

ELECTRO-KRAFT CO. DEPT. S-1,
Old Chelsea Station P.O. BOX 237 New York 11, N. Y.

MAKE EXTRA MONEY

PLASTICS

LEARN AT HOME

There are RICH OPPORTUNITIES for MEN and WOMEN with "know-how" in Plastics. Interstate's new Plastics course tells and shows how to make hundreds of fast selling items out of Plastics. Gives complete training in fabrication, casting, lamination, molding, internal carving, etc., in simple, easy, step-by-step language and pictures. Plastics and Fabricating Kits for 23 valuable Plastic items come with training at no extra cost. START A PLASTICS BUSINESS OF YOUR OWN. No other industry holds such promise for the future. You can make big money manufacturing novelties, toys, signs, etc., in your own home in spare or full time. Don't wait! Learn NOW how Interstate's Plastics Training qualifies you for success in the Plastics field.

PLASTICS AND SUPPLIES FURNISHED FOR 23 VALUABLE PROJECTS

INTERSTATE TRAINING SERVICE
Dept. C2A Portland 13, Oregon

TEAR GAS

A REAL SURE-FIRE SELLER!

THUGS AND THIEVES BEWARE!

Here is a tear gas pencil gun which discharges smothering clouds of tear gas to instantly stop, stun and incapacitate the most vicious man or beast. A safe and effective substitute for dangerous firearms. No permanent injury. Needed in Stores, Banks, Autos and Homes, everywhere to protect Life and Property. No skill required. Handle our tear gas as a side line and you'll soon give it full time. For a quick start send $4.25 for complete demonstrator outfit consisting of an Automatic Pencil Gun with 10 demonstrators and 3 powerful Tear Gas cartridges fully guaranteed. Many thousands now in use. Order your outfit today. Not sold to minors.
Hagen Supply Corp. Dept. A501 St. Paul 4, Minn.

Now Many Wear

FALSE TEETH

With More Comfort

FASTEETH, a pleasant **alkaline** (non-acid) powder, holds false teeth more firmly. To eat and talk in more comfort, just sprinkle a little FASTEETH on your plates. No gummy, gooey, pasty taste or feeling. Checks "plate odor" (denture breath). Get FASTEETH at any drug store.

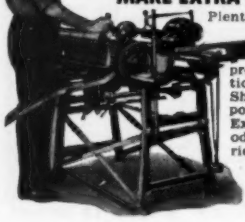
BATTERIES

START A FACTORY AT HOME

—and re-cast junk batteries into new, with and without new materials; the latest achievement. We supply complete instructions and everything needed. Large daily profits.

BATTERY LABORATORY SCHOOL
DEPT. PSM, MINNEAPOLIS 4, MINNESOTA

IDEAL LAWNMOWER SHARPENER



MAKE EXTRA CASH THIS EASY WAY!

Plenty of mowers to grind in your community! IDEAL Model 300 grinds them all with ease and precision—assures your reputation for perfect workmanship. Sharpens all mowers—hand or power—without disassembling. Exclusive hook grinding method perfected by 50 years' experience. Get started now in this profitable business; write for FREE complete catalog today.

THE FATE-ROOT-HEATH COMPANY
Dept. PS-1, Plymouth, Ohio

GLUE IT RIGHT WITH ROGERS

SAVES MONEY - RESTORES HOUSEHOLD NECESSITIES

Send 15c for full-sized jar of famous Rogers Glue. Fix broken furniture solidly and easily. Project Plans for building useful things with wood included free. Rogers Glue is easier to work — makes a joint stronger than wood itself. Take advantage of this special offer — Send your 15c to Rogers Isinglass & Glue Co., Gloucester, Mass. today. Ask for Rogers Glue at your local hardware store.

"A Ton of Strength in Every Drop"

ROGERS

the best LIQUID FISH GLUE

GLOUCESTER, MASS.

STOPS *FOGGY* WINDSHIELDS

NEW Chemical Mitt

Amazing Discovery! Autoists wild over new FOG-STOP Windshield Cleaner. Simply glide over windshield chemically-treated Mitt—at once glass sparkles crystal clear. Blurry mist, frost, sleet, snow disappear like magic. Stops fogging. *Sells like wild!*

SAMPLES FOR AGENTS Sample offer sent immediately to all who send name at once. Hurry. Postcard will do. SEND NO MONEY—*just your name.* KRISTEE CO., Dept. 713, AKRON 8, OHIO

$750 BUILDS 4 ROOMS & BATH!

WHY PAY RENT? **For Seven Hundred Fifty Dollars and 30 days of your spare time, you can build yourself this Beautiful Home.**

Living room, 11x15. Front bedroom 9x11. Back bedroom 10x12. Kitchen 9x11, Bath 5x8, Hall 3x4. Wind out steel casement windows. Concrete block, stucco. Illustrated pictures, step by step instructions, blueprint and material list, $1.00. Money back guarantee.

L. H. FARROW, Dept. D
Box 645 Columbus 16, Ohio

MONEY in HAMSTERS

The new wonder animals from Syria. Often called Toy Bears. Delightful pets. Everyone desires them. Wanted by laboratories and pet shops. Clean, odorless. Raise anywhere. A profitable hobby or business. Write today for free book of details.

GULF HAMSTERY
13 Fir St. Gulf Shores, Ala.

Our 580th Advertisement

REAL DIESEL ENGINE

$3.95
- for planes, boats, midget cars
- 7500 RPM; 1/7 HP; ht. 3½"; wt. 5 oz.
- precision machined for smooth operation

You just can't beat this price for a precision diesel engine! Streamlined, compact, easy to install. Thousands of satisfied users all over the world. Fast delivery if you ORDER TODAY! Send $3.95 plus 25c postage.

Engine is completely assembled, and includes all engine parts including; crankcase, crankshaft, connecting rod, piston, cylinder and carburetor.

ORDER TODAY! FAST DELIVERY!

GOTHAM HOBBY CORP.
Dept. S, 107 E. 126th St., New York 35, N. Y.

NEW PREPO

600 series fully-automatic **GAS TORCHES and Accessories**

EXCLUSIVE!

6 interchangeable burners and tips ...give you the right tool for the job!

Utility Burner
for general purpose work

Heavy-Duty Burner
greatest heat volume for heavy jobs

Pin Point Burner
for precision work

Paint Remover Tip
for fast paint removing

Diamond Point Solder Tip
for fine quick work

Chisel Point Solder Tip
for fast production

DO YOU OWN A PREPO?

The new accessories will fit your torch . . . double its usefulness. See your dealer for Conversion Adaptors.

PREPO CORPORATION • Skokie, Ill.

Rapid Promotion for NORTHROP Engineering Grad

It's another promotion—the second in two years—for Howard Sherman! Since graduation from Northrop Aeronautical Institute, Howard has held an interesting and exciting job solving assembly, ducting, motor-mounting, and other engineering problems on advanced design and experimental aircraft. His Northrop training has helped speed his progress toward success!

Northrop Graduates Have Vast Opportunity! Hundreds of NORTHROP graduates are building successful careers in *every phase* of aviation. The enviable records of achievement they have established have created an increasing demand for NORTHROP graduates. This demand is so great that NORTHROP graduates are offered *their choice of interesting, exciting, profitable jobs* PRIOR TO GRADUATION!

Begin Your Aviation Career at Northrop! NORTHROP AERONAUTICAL INSTITUTE is an accredited technical institute open to public enrollment. NAI offers courses in AERONAUTICAL ENGINEERING and AIRCRAFT & ENGINE MECHANICS that are *thorough, practical, and complete!* A NORTHROP Catalog outlining courses and picturing the advanced training facilities will be mailed on request. Fill in the coupon below.

***KOREA VETERANS**...NAI training is fully approved for all veterans.*

Northrop Aeronautical Institute

1525 E. Broadway, Hawthorne, Los Angeles County, Calif.

NORTHROP AERONAUTICAL INSTITUTE
1525 E. Broadway, Hawthorne, Los Angeles County, Calif.

Please send me immediately the Northrop catalog, employment data, and schedule of starting dates of classes. I am interested in:

☐ Aeronautical Engineering ★ Aircraft & Engine Mechanics ☐

Name_____ Age_____

Address_____

City_____ Zone____ State_____

VETERANS: ☐ Check here for Special Veteran Training Information

SN15-A

PAGE Garden Tractors

1953 MODELS

More Work! Less Cost!

• 2 to 6 HP walking and riding machines • Over 60 attachments available! • Enclosed gear drive with reverse.

No belts — No chains!

Also new one-wheel "Bantam" model

Low Prices — Easy Terms

25 years' experience behind every PAGE — fully guaranteed!

Plows, discs, tills, seeds, cuts grass and weeds, and many other jobs!

Free Catalog *Shows over 60 attachments!

PAGE 1816 S. 81st St. Milwaukee, Wis.

RUPTURED?

Get Relief This Proven Way

Why try to worry along with trusses that gouge your flesh—press heavily on hips and spine—enlarge opening—fail to hold rupture? You need the Cluthe. No leg-straps or cutting belts. Automatic adjustable pad holds at real opening — follows every body movement with instant increased support in case of strain. Cannot slip whether at work or play. Light. Waterproof. Can be worn in bath. Send for amazing **FREE** book. "Advice To Ruptured" and details of liberal truthful 60-day trial offer. Also endorsements from grateful users in your neighborhood. Write:

CLUTHE SONS, Dept. 14, Bloomfield, New Jersey.

Play GUITAR in 7 DAYS

OR GET YOUR MONEY BACK!

Let Ed Sale teach you to play with his famous 66 page diagram photo system. Contains 53 photos, 43 diagrams, showing exactly how to place your fingers. Over 100 Hillbilly, Popular, and Western songs, words and music—along with complete, easy to learn instructions. Imagine your joy when you find after only two weeks you are playing beautiful music! Amaze your friends! Be the life of the party! SEND NO MONEY. Pay Postman $1.98 Plus Postage or send $2 and I pay postage. (Same guarantee). **ED SALE, Studio 1804, Bradley Beach, N. J.**

Learn to MOUNT Birds and Animals

To All Men & Boys!

Here is FUN and PROFIT!

Send Coupon for Free Book

Tells all about **Taxidermy**, and how you can learn **at home** to mount life-like **Birds, Animals, Game-Heads, Fish.** Save your valuable trophies. Decorate your home and den. Learn genuine **Chrome Tanning** for harness and sole leather buckskin and fine furs. Mount **Common** specimens, squirrels, rabbits, owls, even frogs, into marvelous craft-work groups, both useful, humorous. Wild game not necessary. Marvelous hobby. Fascinating.

BIG PROFITS Turn your spare time to cash. Have a sideline profitable business. Mount game trophies for sportsmen; sell your own mounts; save money and **Make Money** with expert tanning. Learn by *mail* from old reliable school with 400,000 graduates. **Investigate Now.** Send coupon or letter or post card **Right Now** for this marvelous **FREE BOOK.** There is no cost or obligation. Please state your **AGE.**

FREE BOOK

Northwestern School of Taxidermy,
2601 Elwood Bldg., Omaha, Neb.

Gentlemen:—Please send me your FREE 48-page booklet explaining Taxidermy. (Please print plainly, and state **age.** Use postal card if more convenient.)

Name _____ *Age* _____

Address _____

SHIP MODEL KITS

Largest supply in New England. Fittings — Blueprints — Books. All prices. Write Dept. PS53. BIG ILLUSTRATED CATALOG 25c

JAMES BLISS & CO., INC.
121 Years in Business 342 Atlantic Ave., Boston 10, Mass.

TWO NYLON STOCKINGS FREE

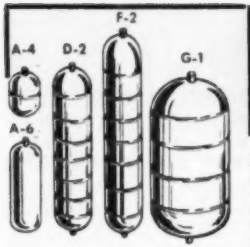
Sent You with Big Thrilling Money-Making Demonstration Kit...

You'll be amazed to see how easy it is to MAKE MONEY in spare time introducing new kind of hosiery—made of DuPont Nylon—and backed by amazing **Guarantee—*3 pairs guaranteed 3 months against runs, snags, tears, holes, or new nylons* FREE!** We'll send you 2 sample stockings to show how they look more beautiful, feel more comfortable, and wear longer because they are made in 52 leg proportions to fit like made-to-order. Replacement or refund of money guaranteed by Good Housekeeping if not as advertised therein.

Show Samples! — Take Orders! — Make Money!

You need no experience and pay no money for samples or anything. Just rush your name, address, and hose size for 2 actual stockings and Demonstration Kit, sent you ABSOLUTELY FREE. Write today!

AMERICAN HOSIERY MILLS, Dept. R-16, Indianapolis 7, Ind.



STEEL AIR TANKS

Steel pressure tanks suitable for compressors, pneumatic units, gases, hydraulics, and liquids. Rated at 500 lbs. per square inch pressure. ¼" standard pipe thread openings on tank ends as shown.

			Size	Wt. Lbs.	Internal Volume	Price
A-4	Carbon Steel	—New	7½"x8¼"	1½	104 cu. in.	$1.50
A-6	Carbon Steel	—New	14½"x8½"	3¼	280 cu. in.	3.50
D-2	Stainless Steel	—New	24"x6"	5	500 cu. in.	5.50
D-2A	Carbon Steel	—New	24"x6"	5	500 cu. in.	4.50
F-2	Stainless Steel	—New	45"x6"	11	1000 cu. in.	9.50
F-2A	Carbon Steel	—New	45"x6"	11	1000 cu. in.	5.50
G-1	Stainless Steel	—New	24"x12"	18	2100 cu. in.	11.50
G-1A	Stainless Steel	—Used	24"x12"	18	2100 cu. in.	9.50

Prices F.O.B. Chicago. Include approx. postage on orders paid for in advance. C.O.D. orders enclose 25%, balance sent C.O.D.

U. A. S. Corp. Dept. PS1, 5637 W. 63rd Pl. Chicago, Ill.

MANAGEMENT PRODUCTION

Production experts earn big money. Thousands of firms need them. We train you thoroughly at home in spare time for management positions. Previous experience unnecessary. Personal training under supervision of production management authorities. Placement counsel and help. Write for FREE book "Industrial Management."

LASALLE Extension University, 417 So. Dearborn St.
A Correspondence Institution, Dept. 1831M, Chicago 5, Ill.

ANALYZE HANDWRITING

MORE INCOME... MORE PRESTIGE AND MORE SUCCESS!

FASCINATING, uncrowded profession - business, full or spare time. Free illustrated lesson and yearbook shows how men and women in home and business find opportunity in analyzing handwriting. *Understand People—Make Money.* Free lesson and information about amazing opportunities if over 21.

I. G. A. S., Inc., 810 Wilhoit Building, Springfield, Missouri

DAN LURIE
"America's Most Muscular Man" on television's "Big Top."

FAMOUS DAN LURIE

BARBELLS

with 4 courses—low factory prices

50 lb. set....$ 8.48 | 150 lb. set....$20.48
100 lb. set.... 13.98 | 200 lb. set.... 25.98

Order by Mail: 50% with order, bal. C.O.D. Extra wts. 15c per lb., F.O.B. plant

Write for Free Catalog

DAN LURIE BARBELL CO.
1701-S1 Pitkin Ave., Dept. 370-A, Brooklyn, N. Y.

MAKE CRIME YOUR BUSINESS

ON THE SIDE OF THE LAW!

Help fight crime! . . . Earn steady good pay as a Finger Print Expert or Investigator. I.A.S. trains you—by easy, low-cost home study lessons. Learn this exciting work in spare time. Write for full details now!

OVER 800 POLICE BUREAUS...

Employ I.A.S.-trained men . . . proof of what I.A.S. can do. Write today (state age) for details. No obligation. No salesmen will call.

INSTITUTE OF APPLIED SCIENCE
Dept. 1361, 1920 Sunnyside Avenue
Chicago 40, Illinois

"Put Your Finger" ON Any Car Trouble IN A JIFFY!

Handy New Guide Lists 2000 Causes of Faulty Operation, Noises, Breakdowns

SAVE TIME AND WORK on *any* auto repair job by being able to "put your finger" on exactly what's causing the trouble—*right from the start!* New, indexed TROUBLE-SHOOTER GUIDE—prepared by the Editors of the world-famous MOTOR'S Repair Manuals—lists over 2000 specific causes of car and truck troubles; helps you find the one you're after FAST. Book fits right in your pocket for instant reference. Spiral binding lets book stay open while you work. Cross-section PICTURES also included.

If car has Fan Belt noise—turn to Fan Belt Section, for 8 specific things that can be wrong. MOTOR'S TROUBLE-SHOOTER helps you track down noises, knocks, misses, breakdowns — faulty operation from radiator to rear end. Covers engines, clutches, brakes, ignition, new automatic transmissions, etc. Gives quick help to beginners as well as experienced repair men!

Try Book for 7 Days without obligation!

SEND NO MONEY—Mail Coupon—When postman delivers book, pay him $1, plus postage and C.O.D. charges. (Or send $1 with coupon, and we pay shipping charges.) If not delighted, return book in 7 days for full refund. **MOTOR Book Dept. Desk EZ, 250 W. 55th St., New York 19, N. Y.**

HOW TO SPOT—

87 Automatic Transmission Troubles, 8 Causes of Connecting Rod Noise, 87 Checks for Poor High-Speed Performance, Lack of Power, 82 Causes for Engine "Misses," 17 Checks for Pre-Ignition or Spark Knock, 45 Causes of Excessive Oil Consumption, 14 causes of Crankshaft Noise, 73 Checks for Clutch Troubles, 66 Causes of Rear-Axle Trouble, 150 Checks for Front Suspension and Steering Troubles, 81 Causes of Brake Trouble, 27 Checks for Faulty Springs and Shock Absorbers, 84 Different Types of Wheel Troubles . . . AND MUCH, MUCH MORE!

New "Dope" On Automatic Transmissions Covers:
- HYDRAMATIC
- BUICK DYNAFLOW
- CHEVROLET POWERGLIDE
- PACKARD ULTRAMATIC
- STUDEBAKER AUTOMATIC

MOTOR Book Dept., Desk EZ,
250 West 55th St., New York 19, N. Y.

Rush me MOTOR'S work-saving TROUBLE-SHOOTER. I will pay postman $1 on delivery, plus 43c postage and actual Gov't. C.O.D. charges for each copy ordered. Unless completely satisfied, I may return book in 7 days and my money will be promptly refunded.

Name.....

Address.....

City..... Zone..... State.....

☐ **SAVE 43c POSTAGE, C.O.D. CHARGES.** Check if you send $1 with coupon, then we pay shipping costs. Same refund guarantee.

Men!

Reading This Message Could Be the Most Important 40 Seconds In Your Life

From every indication Auto Body and Fender Repair work will continue to be one of America's Big Income fields. Here at U.E.I. we're training men for it — a **proven** plan that combines spare-time, home study and actual shop practice. Men from coast to coast have successfully completed the U.E.I. course in Auto Body and Fender Repair — many earned money while learning — many now have their own shops. What about you? Isn't this the time for you to see what this big-pay field offers you? Do this: Mail the coupon below and we'll send you our big, descriptive book, "Opportunities." It's Free — Mail the Coupon.

UTILITIES ENGINEERING INSTITUTE, Chicago 14, Illinois
Founded 1927

UTILITIES ENGINEERING INSTITUTE,
2523 Sheffield Ave., Dept. XM-18, Chicago 14, Illinois
Please send, Free, Your Book "Opportunities".
NAME (print) .....AGE.....
ADDRESS .....
CITY..... (Zone).... STATE.....
☐ Check here for information if you are under 17.

C. KAMA

"I'M MAKING MORE THAN $1000 a Month

Haven't Touched Bottom Yet!"

—reports Charles Kama, Texas, one of many who are "cleaning up" with orders for PRESTO, Science's New Midget Miracle Fire Extinguisher. So can YOU!

Science's New Midget Miracle "PRESTO"

AMAZING new kind of fire extinguisher. Tiny "Presto" (about size of a flashlight!) does job of bulky extinguishers that cost 4 times as much, are 8 times as heavy. Ends fires fast as 2 seconds. Fits in palm of hand. Never corrodes.

Guaranteed for 20 years! Over a million sold!

Show it to civil defense workers, owners of homes, cars, boats, farms, etc. and to stores for re-sale—make good income. H. J. Kerr reports $20 a day. Wm. Wydallis, $15.20 an hour. Write for FREE Sales Kit. No obligation. MERLITE INDUSTRIES, Inc., Dept. 111, 201 East 16th St., New York 3, N.Y. *IN CANADA: Mopa Co., Ltd., 371 Dowd St., Montreal 1, P.Q.*

(If you want a regular Presto to use as a demonstrator, send $2.50. Money back if you wish.)

MORE JOBS EASIER QUICKER With Gear-Driven **"RED-E" GARDEN TRACTORS**

NO BELTS! NO CHAINS!
Proven For Over 29 Years
NEW 1953 MODELS

Thousands of satisfied users say "RED-E" has solved their tractor problems. You too, will like its smooth, powerful, easy-to-operate gear-driven action—with power turning clutch for 4½ and 6 H.P. WALKING MODELS and automotive type differential for 8½ H.P. RIDING MODEL. Our 2 and 3 H.P. Walking Models low as $169.00. Attachments for plowing, sowing, cultivating wood-sawing, snow-plowing, etc. EASY TERMS—Factory-To-You discount. Write for FREE Catalog.

RED-E TRACTOR CO. Richfield 346, Wisconsin

STUDY TO BE A DOCTOR
of Psychology or Metaphysics

Obtain a Ps.D., Ms.D., or Ph.D. degree. Be a Teacher, Lecturer or Accredited Practitioner. Teach others how to achieve Health, Happiness and Contentment. Chartered by State. Write for FREE book telling how.

THE NEOTARIAN COLLEGE OF PHILOSOPHY
Desk 5, Pickwick Building Kansas City 6, Missouri

AMAZING NEW POCKET SIZE RADIO
NO TUBES, BATTERIES OR ELECTRIC "PLUG-INS" NEEDED. "TUNES IN" MOST LOCAL RADIO STATIONS with **STATIC-FREE CLEAR TONE.** Has new perma-crystal diode and **TINY SELF-CONTAINED SPEAKER PHONE**—A marvelous real tiny pocket size radio to take with you anywhere you go—**FOR REAL FUN AND ENJOYMENT. GUARANTEED TO WORK** and should last for years! **SEND $1.00** (cash, mo. ck) and pay postman $3.99 C.O.D. postage or send $4.99 for p.p. delivery. **COMPLETE** ready to play. By mail only from:
MIDWAY COMPANY
DEPT. PPS-1 KEARNEY, NEBRASKA

NOW YOUR OWN ROBOT

Remotely controlled by its *MASTER* within seeing distance! Fun to build and operate. Obeys commands to walk and talk. Easy to make. Send $1.00 today **To: ROBOT**
P. O. Box 7171 El Paso, Texas

RUPTURE-EASER

Reg. U. S. Pat. Off. **FOR MEN, WOMEN AND CHILDREN**

A strong, form fitting, washable support. Back lacing adjustable. Snaps up in front. Adjustable leg strap. Soft, flat groin pad. No steel or leather bands. Unexcelled for comfort. Also used as after-operation support. Give measure around the lowest part of the abdomen. State right or left side or double. We pay postage except on COD's.

Pat. No. 2666951
Single or Left Side **$3.95**
Double 4.95

PIPER BRACE CO.
811 Wyandotte Dept. PS-13 Kansas City 6, Mo.

Party Records
FOR ADULTS ONLY

THEY'RE SENSATIONAL! Brand new series of exclusive phonograph records. Spicy songs that will make your party a howling success. Songs and music in a style you will like. Complete set of SIX DIFFERENT songs on good quality 10-inch 78 R.P.M. records, sent prepaid for $4.95 in sealed package. No C.O.D.'s.

NATIONAL, Dept. 478,
BOX 5—STA. E TOLEDO 9, OHIO

PAINT STRIPING TOOL

Works Like a Fountain Pen

Stripes with PAINT instead of INK!

New Master Painters' STRIPING TOOL makes it easy to do expert striping on furniture, bikes, model planes, autos, signs, linoleum, toys, wall board, etc. Makes plain, painted walls look like tile. Paint straight lines, curved, circular or evenly spaced parallel lines the same way a professional painter does. Simply fill Tubular Glass Paint Fountain with any color paint & wheel tip feeds paint evenly. Tips interchangeable – jaws split apart for easy cleaning. Tool complete with tip for 1-16 in. stripe only $1 postpaid. Other complete tools with 1-64, 1-32, 3-64, 5-64, 3-32, 1-8 in. tips, $1.50 ea. Extra tips, 75c. **Complete Kit** with tool and 7 tips, $5.00. Handiest tool in painter's kit. Get it now. C.O.D.'s postage collect.

$1.00 POSTPAID

Tubular Glass Paint Fountain

A Visible Paint Supply

DEALERS
Paint Striping Tool
Packed in attractive Display Cartons of one dozen. Fast, profitable seller. Write for illustrated circular, discounts.

Thumb and Finger Rests. Easy to Guide Tool

Guide Keeps Lines Straight

Knurled Wheel Distributes Paint

WENDELL MFG. CO.
4234 N. Lincoln Avenue
Dept. 21, Chicago 18, Illinois

Paints Curved, Circular or Straight Lines

NEW! EXCITING!

JET EXHAUST CUT-OUT

Now your car can sound off those exciting, dynamic tones—easily controlled mechanically from your dashboard. Channel your exhaust through special pipes or muffler without removing your original muffler. Easily installed, MONEY BACK GUARANTEE

- MADE OF HEAVY PLATE STEEL
- UNIVERSAL—FITS ALL EXHAUSTS

Send $1.95 check, cash, money order (postpaid) or C.O.D. plus postage to:

FUR SALES, 1031 E. 63rd St., Chicago 37, Ill., Dept. P5

DEALER INQUIRIES INVITED

make your own *Gems* **29.50 F.O.B.**

The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt, for only $29.50, f.o.b., Burlington, Wisconsin. Write today for information and literature.

B & I MANUFACTURING CO.
Dept. S Burlington, Wis.

RAISE GIANT FROGS

Big Demand

Nufond Giant

Millions used yearly!

Frogs sell $5 dozen. Breeder lays up to 20,000 eggs yearly. **Season just starting!** Men & Women get ready now for this year's eggs. Small pond starts you. New book tells how! Send for illustrated **FREE** folder today. Write to

MARLBORO HOUSE-11
1035 Marlborough, Detroit 15, Mich.

CAR BURNING OIL?

Nothing's as good as a complete mechanical overhaul, but Holt's Piston Seal is the proved, low cost alternative that cuts oil consumption and increases power for up to 10,000 miles. Only $4.95. Ask your dealer!

HOLT'S Piston Seal Cylinder Compound

MUFFLER TROUBLE?

No muffler is installed right, no muffler is repaired right, unless the job is done with Holt's "Gun Gum" Muffler Seal. Use straight from the can, no mixing. Ask your dealer!

HOLT'S GunGum MUFFLER SEAL

TREGLOWN CO., INC., FANWOOD, N. J.

IN CANADA: Treglown, Ltd., 1366 Greene Ave., Montreal 6

NEW

1953 BOAT KITS BY

U-MAK-IT

30 Models 8 TO 23 FEET

21 FT. OUTBOARD AND INBOARD CABIN CRUISERS

New

Roomy cabin sleeps 2. Includes full size toilet room, galley, sink & ice chest.

18 FT. OUTBOARD AND INBOARD CABIN CRUISERS

New

Fast Vee bottom hull, speeds up to 25 M.P.H. Accommodations for 2.

ROWBOATS OUTBOARDS INBOARDS

8 to 14 Ft. 12 to 21 Ft. 16 to 23 Ft.

NEW 1953 CATALOG

48 PAGES, shows construction details. Incl. everything to build your own—hardware, engines, conversions, paint & color chart.

SEND 35¢ COIN TODAY

U-MAK-IT PRODUCTS 703R - WHITTIER ST. Bronx 59, N. Y. City

KIT BOAT OWNERS

Protect your boat with Fiberglas. Makes new & used boats permanently water-tight. Lengthens lifetime, strengthens construction, increases value & safety. **SEND 10¢** postage for interesting booklet with detailed instructions.

EVER GLASTING (U-MAK-IT PRODUCTS) 703R-WHITTIER ST. BRONX 59, N. Y. CITY

Your pictures are worth Cash!

IF YOU KNOW WHERE TO SEND THEM!

This book tells how to turn your pictures into cash—and how to *take* the kind of pictures that will sell. Lists the various markets for photographs and the best way to contact them. 10-day trial.

Step-by-step illustrations of how to attain technical skill, notable artistry and business success in any branch of commercial photography from "portraiture" to "press".

Special Features of COMMERCIAL PHOTOGRAPHY tells you how to select and improve the photogenic qualities of a model by the proper use of make-up.

Systems for portrait lighting, technique for photographing a person who wears glasses, third dimensional effects, rim lighting for fashion, figure, wedding photography.

Plus hundreds of other know-how ways to turn your pictures into dollars. *Examine book 10 days—then pay $5.00 if you keep it.*

MAIL COUPON FOR 10-DAY FREE TRIAL

American Technical Society (Publishers since 1898)
848 E. 58th Street, Chicago 37, Illinois, Dept. P-120

Send me a copy of COMMERCIAL PHOTOGRAPHY to use. If after 10-day free trial I'm not convinced that this book can help me make money with the pictures I take I may return book and owe nothing. Also please send free book catalog which I may keep even if I return book.

Name_____

Address_____

City_____ State_____

I prefer ☐ Ten-day no-cost-trial. If I keep book bill me and I will remit by check or money order. ☐ Send C.O.D. Same return privilege—money refunded. ☐ I'm enclosing $_____ now to save postage—same return privilege.

HUNDREDS OF NEW **PROFIT SOURCES**

Yours today in the New 1953 treasury of

"NEW PRODUCTS AND SERVICES"

This exciting new Journal of Commerce 80-page handbook lists and describes 1,000 *new* money-making lines by 750 manufacturers. Yours to use, sell, produce or compete with. Get your copy now—then follow the daily "New Products" column in The Journal of Commerce. Your copy sent free with trial subscription of J-of-C—10 weeks for only $5, a saving of $2.50. Mail coupon now—keep track of new profit sources.

THE NEW YORK **Journal of Commerce**
53 Park Row, New York 15, N. Y.

Send me the J. of C. for the next 10 weeks plus my copy of "New Products and Services." Check for $5 is enclosed.

Name_____

Address_____

City_____ Zone_____ State_____ PS-1

ORLON Work Uniforms

Coining Money for Salesmen!

The billion-dollar work uniform business is up for grabs! Miracle ORLON UNIFORMS make wool and cotton obsolete! Outwears wool 3-to-1; outwears cotton 5-to-1. What's more, ORLON is acid-proof, water-repellent, grease-resistant. Looks like wool, tailors like wool—but washes clean in soap and water. Drys out with original factory press! Everybody buys—service stations, garages, factories, etc. Huge demand and huge profits! Custom embroidery clinches sales. Write for *Free selling outfit*, actual samples.

TOPPS
Dept. 621, ROCHESTER, INDIANA

Make **BIG MONEY!**

RAISE CHIN-CHINS

PURE BRED, PEDIGREED, PROLIFIC CASH MARKETS SUPPLIED for your Production. Pleasant—Easy—Full or Part Time. Learn HOW these year-round money-makers can produce REAL PROFITS for you!

FREE illustrated Booklet — WRITE TODAY!

ROCK HILL RANCH, SELLERSVILLE 41, PA.

WORLD'S LARGEST BREEDER OF CHINCHILLA RABBITS

ELECTRIC APPLIANCE REPAIRMEN

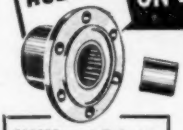
Find all the sources of supply for parts on all ELECTRIC APPLIANCES . . . Washing Machines, Vacuum Cleaners, Ranges, Sewing Machines, Small Appliances, etc.

The Only Publication Especially for the Appliance Repairman

SEND ONLY 20¢ IN STAMPS OR COINS FOR SAMPLE COPY

ELECTRIC APPLIANCE SERVICE NEWS
Dept. S-50 176 W. Adams St., Chicago 3, Ill.

WARN HUB CAP



ENDS FRONT WHEEL DRAG ON 4-WHEEL DRIVE JEEPS

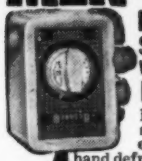
MAKES 2 JEEPS OUT OF 1!

Cut repair bills! Double the usefulness of your Jeep! Enjoy snappier performance! Install Warn Hub Caps on your 4-wheel drive Willys Jeep, Station Wagon or pick-up; or Dodge Army ¾ ton or Power Wagon—get more power, speed, pick up. Warn caps eliminate heavy drag of complex front end drive assembly, front wheels coast out of gear on roller bearings—4-wheel handles, performs like 2-wheel. Warn Caps increase gas mileage up to six miles per gallon, stop shimmy even though gears are worn, add thousands of miles to tire life. No interference with low power range or 8 speeds. Easy to install or remove in 10 minutes. No special tools required. Thousands of satisfied owners. Polished aluminum, last for years. Guaranteed. Rush check, M.O., C.O.D. or write for literature.

Willys $20.00
Dodge $23.00
Pair, Prepaid U.S., Canada

WARN MFG. CO., Riverton Box 6064 - B2, Seattle 88, Wash

MEN WANTED!



Make $15-$20 in Few Hours Spare Time—up to $210.00 a Week FULL TIME—with Amazing

D-FROST-O-MATIC!

Millions of housewives want this sensational new Automatic Refrigerator Defroster! No more messy hand defrosting! Just plug in D-FROST-O-MATIC and refrigerator is defrosted *automatically* every night! Sales easy, sure when you leave D-FROST-O-MATIC on FREE TRIAL—housewives won't let you take it out! Saves money, food, time, work! ***Big profits for you***—up to $210.00 a week full time—$15 to $20 in just a few spare hours! Start spare time and build big, prosperous business . . . quickly, easily!

SELLY of California started in his spare time and now sells 1500 D-Frost-O-Matics a month!

Rush Name Today for Profit Details and FREE TRIAL PLAN!

More than **29,000,000** prospects waiting! Rush your name and address today. We'll airmail exciting facts, proof and sure-profit Free Trial plan. No obligation. Write today.

D-FROST-O-MATIC, Dept. S-14
173 W. Madison Street, Chicago 2, Ill.

ITALIAN ACCORDIONS

All types, all models. Very best. Hand Made. Fully guaranteed. Buy direct from Factory representative at lowest wholesale prices, and Save Money. Also Button Accordions, Chromatic Accordions and Concertinas. We take any instruments in trade. Send name and Address for FREE catalog.

ITALIAN ACCORDION MFG. CO.
7600 Cottage Grove Ave., Dept. PS-1, Chicago 19

Quick, EASY Way to REPRODUCE any Object

Make exact duplicates of trays, lamp bases, medals, figurines, vases, etc. right at home overnight! New RUBBER MOLD method needs no heat-curing. No special skill or tools required. Make perfect reproductions of objects of clay, plasteline, wood, metal, glass in any quantity! Cost will be only few cents. Send for Brochure 52 which gives exact step-by-step instructions anyone can understand and follow. Send 10c for it today to

SCULPTURE HOUSE, 304 West 42nd Street, New York 36, N. Y.

ILLUSTRATED COMIC BOOKLETS

THE KIND MEN LIKE!
THE GIRLS LIKE IT TOO!!
(VEST POCKET SIZE)

They are loaded with rare cartoons. Full of Fun and Humor. ***20 DIFFERENT*** booklets sent for $1 in sealed wrapper. No C.O.D.

BULCO, Dept. 461, Box 382-K., G.P.O., N.Y.C. 1

END GENERATOR REGULATOR BATTERY TROUBLE

INSTALL TO CAR REGULATOR... THE AMAZING NEW-ADJUSTABLE

SELECT-A-CHARGE REGULATOR WITH REVOLUTIONARY NEW DASHBOARD CONTROL

GET MORE WATTAGE-POWER FROM CAR GENERATOR

DOUBLE YOUR BATTERY SIZE

WITH CHARGE CAPACITY AND LIFE... HIGH WATTAGE SPARK...TO ADD HORSEPOWER TO YOUR CAR. ADJUSTABLE CHARGING VOLTAGE...TO FIT SHORT HOP DRIVING...LONG TRIPS OR EXTRA HEAVY WINTER DUTY. EMERGENCY POWER... FOR IGNITION AND ACCESSORIES TO SAFELY CARRY YOU IN CASE OF BROKEN BATTERY-TERMINALS-CABLES-LOST OR STOLEN BATTERY.

LIFETIME GUARANTEE · FREE BULLETIN · WRITE TODAY

SCIENTIFIC ELECTRIC CO. BOX 2262-B **CLEVELAND 8, O.**

BE YOUR OWN BOSS! *Big Money* waiting for you today in floor surfacing! Hundreds of prospects near you! The floor next door may be your first job—and business mushrooms as folks tell others. Earn as high as $50 and more a day sanding floors with an easy-to-run American Machine. Pleasant indoor work—steady the year round. A sound opportunity to get in something for yourself and be *your own boss!* No schooling—no experience needed. Only small investment in sander gets you started to success! Send coupon for "money-making booklet" entitled "Opportunities in Floor Surfacing"—enclose 25c in coin or stamps to cover handling.

AMERICAN FLOOR MACHINES

SEND!

The American Floor Surfacing Machine Co.
532 So. St. Clair St.
Toledo 3, Ohio

Enclosed find 25c in stamps or coin for booklet "Opportunities in Floor Surfacing", telling me how I can start my own floor sanding business.

Name.....

Street.....

City.....State.....

The NEW Model 50 UTILITY TESTER

FOR REPAIRING ALL ELECTRICAL APPLIANCES-MOTORS

an all-around electrical trouble shooter

- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, etc.
- Will measure the current consumption while the appliance under test is in operation. The appliance or utility may be plugged directly into the front panel receptacle. A special pair of insulated clip-end leads is included for motors, etc.
- Incorporates a sensitive direct-reading resistance range which will accurately measure all resistances commonly used in electrical appliances, motors, etc. This range will enable continuity checks and tests for shorts and opens.
- Will test thermostats, radio tube filaments, bulbs, fuses, fluorescents, condensers, switches, field coils, circuit breakers, lighting systems, etc.

Handsome round cornered molded bakelite case 3⅛" x 5⅞" x 2¼". Complete with all test leads and instructions.

$13.90

SHIPPED ON APPROVAL

No Money With Order — No C.O.D.

Try it for 10 days before you buy. If completely satisfied send $3.90 and pay balance at rate of $2.00 per month for 5 months —No Interest or Carrying Charges Added. If not completely satisfied, return to us, no explanation necessary.

SUPERIOR ELECTRONIC CO., INC.
Dept. D-46, 227 Fulton Street, New York 7, N. Y.
Please rush 1 Model 50. I agree to pay $3.90 within 10 days after receipt and $2.00 per month thereafter.

Name.....

Address.....

City..... Zone..... State.....

Embed Real Flowers In New MAGIC PLASTIC

Create lovely things like the pansy coaster shown—made by embedding **real pansies** in Castolite liquid casting plastic. Comes crystal clear or may be colored. Also make jewelry, book ends, candle holders, picture frames, figurines. Embed real flowers, butterflies, coins, photos, for plaques, paper weights, tiles, other objects. Use only home tools.

25¢

● **New Book SHOWS HOW**

Big, new book explains how to get started. Have fun—make extra money! Send 25c today for our "Castolite Creations" Manual and our proved "Home Success Plan." Or write for free folder.

The Castolite Co., Dept., A-2, Woodstock, Ill.

PARTS FOR MILITARY TRUCKS

FOR JEEP, DODGE, CHEV., GMC, STUDEBAKER, 4 WHEEL DRIVE AND 6 WHEEL DRIVE. ALSO PARTS CATALOG. WRITE

NEW AXLES FOR TRAILERS

Surplus . . . H.D. axles suitable for building many types of trailers, farm wagons, etc. Standard width straight axle. 2 inch square, complete with Hubs, Timken bearings, 6 hole 750x20 or 825x20 wheels, without brakes, only (Dual Wheels $15 extra) **$69.50**

NEW JEEP TOPS and CURTAINS

Military type, easily adapted to civilian type Jeep. Complete top & back curtains, side curtains, snapon doors, 5 windows. Waterproof, OD color, 22 lbs. FOB. KC **$59.50**

All Prices F.O.B. K.C. 25% dep. Required on COD's

UNITED AUTO PARTS CO., Inc.
1901 TROOST AVE. KANSAS CITY, MO.

CASH INCOME

RESPONSIBLE MEN OR WOMEN wanted to independently own and operate PROFITABLE new metal streamlined TAMPERPROOF RCA licensed, coin-operated radios, fully guaranteed. We secure best hotel and motor court locations under contract. Permanent weekly income. Can handle in spare time. No experience necessary. PROFITS start IMMEDIATELY. Full priced steady income routes at $1,195, $1,895 or $2,995 CASH includes freight, installation and guarantee.

If genuinely interested, write, giving phone number to . . .

CORADIO, INC.
196 Albion Avenue, Paterson, New Jersey

Copr. 1952 R. D., Inc.

STOP THAT OIL BURNER!

GET THAT "NEW CAR" PERFORMANCE WITH

Ring-Re-Nu

TRADE-MARK

MOTOR RECONDITIONER KIT

No need for costly overhauling. Simply pour P.V.R. Compound in carburetor to clean engine; remove gum, tar and varnish. Then squeeze RING-RE-NU in cylinders . . . forms a pliable, lubricating seal around worn rings. Restores power and compression, eliminates oil burning and piston slap. Good for 10,000 plus miles . . applied in a few minutes. Order Genuine RING-RE-NU . . . not a foreign import. Made in America for American engineered engines. Guaranteed not to harm your engine.

1 tube kit — good for all makes of cars (except those listed below) only **$4.95** POSTPAID

2 tube kit — for larger engines — Buick Roadmaster, Cadillac, Chrysler 8, La Salle, Lincoln, Packard 8, Olds 88 and 98 — $8.95 postpaid.

($1.00 deposit required on all C.O.D. orders)

10 DAY MONEY BACK GUARANTEE

Free descriptive folder available on request.

RICHIE DISTRIBUTING, INC.
11916 MADISON AVE., DEPT. B1
CLEVELAND 7, OHIO

STOP FORGETTING

STOP FORGETTING names, faces, dates, appointments! Scientific SUPER-MEMORY can be YOURS! Enjoy greater popularity and success! Don't delay . . . start on the road to super memory immediately! Quick, complete course only $3.00! Send for it today!

$3.

MEMORY INSTITUTE — BOX 261A
Staten Island 1, N.Y.

New Jet Engine Burns Gasoline

Powers Your Models

FASTER IT MOVES, THE MORE POWERFUL THE THRUST! New fun & thrills for model makers & experimenters. **Ram jet M.E.W. 601 rocket engine** has no moving parts. Runs on regular gasoline. (Not a CO2 unit). Gives powerful, continuous thrust lasting 3 minutes. Maximum thrust lasts 1½ min. Easy to start & re-fuel. Lasts indefinitely. Aluminum tail pipe, brass fuel metering nozzle, steel compression tank. With booster tank, 5¾-in. long; 11½ oz. **Complete, ready to run. Use alone or in pairs (2 for $5.45) Each Postpaid** **$2.98**

JOHNSON SMITH CO., Dept. 641, Detroit 7, Michigan

Send 10c for Big Catalog of 2000 Novelties, Gadgets, Funmakers, etc.

GEO. HELD reports—

$350 gross in a single WEEK

IN MY OWN BUSINESS!

(mostly clear profit!)

• Here's YOUR chance to start a money-making, year-'round business of your own and make the success you've dreamed about. R. O. Donnley took in $40 in seven hours. O. W. Ware landed a $750 hotel job and made a fine profit. J. S. Corbit grossed $279.50 his first month. P. D. Ash cleaned 23 auto seats at $5 each in one week. And so it goes. Homes, hotels, offices, clubs, all places where furniture is used, offer you big profit possibilities. Auto seats and interiors, also.

NO SHOP OR OFFICE NECESSARY. You clean furniture on customers' premises. No hauling costs. No high rents. Supplies are inexpensive and you operate, at low cost, from your home. What you take in is mostly profit. Surely YOU will want to investigate an opportunity like that—right away. Own your own business. Be your own boss. If you are ambitious, honest and courteous, we will help you to start and succeed.

Some make more . . . some less

START THIS BUSINESS FOR YOUR OWN WITH ELECTRIC UPHOLSTERY CLEANER

SEND FOR FREE BOOKLET

VON SCHRADER MFG. CO.
5111 "D" PL., Racine, Wisconsin

Send at once (no obligation) your FREE booklet containing information about your ELECTRIC UPHOLSTERY CLEANER and how I can own my own permanent, profitable business.

Name_____

Address_____

City_____ Zone____ State____

NEED EXTRA CASH?

Rush Coupon for FREE SALES KIT

Make Money spare time, full time, taking orders from friends, neighbors, and others for world-famous

STARK FRUIT TREES

Cash in now taking orders for Stark Bro's world-famous hardy Apples, Pear, Peach, Plum, Cherry, Quick-Bearing fruit trees. Sensational new U. S. Patented varieties—PLUS amazing new Stark "Dwarf" Trees to make selling easy. Boost earnings showing homeowners, others how to landscape beautifully with Stark Trees, Gorgeous Flowering Shrubs and Roses. Big demand. Get set now with America's largest, oldest nursery—137-year-old reputation for quality and reliability.

Teacher Sells SPARE TIME

John W. Simmons, W. Va., has earned big money spare time during past 22 years selling Stark Fruit Trees, Shrubs, etc.

SEND NO MONEY Get Giant FREE Outfit! Mail coupon today for big demonstration outfit, beautiful Full Color Photo Plate Book, and instructions. No experience needed. Big season starting—ACT NOW!

STARK BRO'S Desk 2913, Louisiana, Missouri

STARK BRO'S Desk 2913, Louisiana, MISSOURI

Please RUSH FREE Sales Outfit. I am ready to make money!
PSMI-53

NAME_____

ADDRESS_____ COUNTY_____

TOWN_____ STATE_____

A Special Purchase Enables Us To Offer These KEUFFEL & ESSER "WYTEFACE" Steel Tapes At Less Than Half Their Original Cost

BRAND NEW FULLY GUARANTEED

This tape has been preferred for years in the industry. A permanent & durable measure built to last a lifetime.

50 FT. (Formerly $7.50) **3.95** Parcel Post 25c

100 FT. (Formerly $12.60) **5.50** Parcel Post 25c

FEATURES

- BLACK ON WHITE MARKINGS, EASY TO READ.
- MARKINGS IN FEET, INCHES AND 16ths SHOWS THE FT. NUMBER AT EVERY INCH IN RED.
- HARD-WEARING RED LEATHERITE CASE WITH NICKEL-PLATED MOUNTINGS.

No C.O.D.'s, Send Check or Money Order

JOB LOT TRADING
53 Vesey St. NYC

Make 100% to 150% Profit!

MANUFACTURE BUILDING BLOCKS
In Your Own Back Yard

AMAZING GENERAL
BLOCK MACHINE
CAPACITY 1000 BLOCKS PER DAY
Only $218 LESS MOTOR F.O.B. PLANT
SHIPPING WEIGHT 480 lbs.

HOW TO BUILD YOUR OWN CONCRETE BLOCK HOME
Only 1 Prepaid

Wonderful Book Written & Illustrated by Experts

Here is an outstanding opportunity for men of vision and small capital. Cinder and concrete blocks are in great demand. Millions used for homes, factories, public buildings. Sell all you produce at 100% to 150% mark-up.

PEAK BUILDING DEMAND!

The General Block Machine is amazingly practical, foolproof. Simple to operate indoors or outdoors. Rugged all steel construction. Vibrator mounted in sealed ball bearings. Produces up to 1,000 blocks per day. Superior 3 Core Type that meets all building code requirements. Can produce 4 x 8 x 16, 8 x 8 x 16, 12 x 8 x 16 blocks. All materials obtainable anywhere. All operating instructions and mixing formulas supplied. Full details FREE without obligation.

GENERAL ENGINES CO.
DEPT. S-13 • 307 HUNTER ST. • GLOUCESTER, N. J.

Includes floor plan for 6 beautiful, easy to build concrete block bungalows. Shows ways to save money. How to lay blocks, lay out building lines, mix concrete, build steps, porches and concrete floors. Mail coupon at once with $1.

Name .....
Address .....
City ..... Zone .. State ...

SAVE MONEY • SAVE FUEL • BE WARMER

STORM WINDOWS
OF GENUINE DU PONT CELLULOSE ACETATE

5 WINDOWS for $6 POSTPAID

• **CLEAR AS GLASS**
No cloudy vinyl plastic effect—but as transparent as the windows it covers.

• **INSTALL IN MINUTES . . . FROM INSIDE**
Scissors and Scotch tape are all you need. No climbing ladders for outside installation! No marring of window sills with tacks. Simply tape on . . . as easy as mending a page!

• **PERMITS AIRING OF ROOMS**
Just lift off tape when open window is desired . . . Replace when window is closed.

100% AIRTIGHT — Used by the U.S. Gov't. Fit any window. Roll size 36" x 288". Sheets easily taped together to cover wider windows. Completely waterproof . . . Instructions furnished. They'll pay for themselves many times over in fuel savings alone. Fill in and mail the coupon TODAY.

SEND NO MONEY!
Pay Postman
YOUR MONEY BACK IN FULL IF RETURNED IN 10 DAYS

T. C. TOR, 2113 Bellevue St.
Phila. 40, Pa., Dept. PS4
GENTLEMEN: Please ship immediately ( ) rolls (ea. roll 36" x 288") — at $6. per roll of TOR Plastic Storm Windows . . . ea. roll enough for five average size storm windows — with instructions.
( ) I will pay postman $..... plus few cents postal collection fee.
( ) Am enclosing payment herewith (saving collection cost)
Name .....
Address .....
City .....

PRECISION CALIPER
MZB This trade mark guarantees highest quality

MODEL #30-78 With set screw accurately fixing position of the slide

M-Z-B PRECISION CALIPERS made by the leading European precision tool craftsmen. Guaranteed highest accuracy for any kind of precision work. Chrome steel, spring-tempered, glass hard on all measuring surfaces. For measuring inside, outside, thread and depth. To read .001" and 1/128", 8" overall, 6" graduation.

The following models have the famous M-Z-B cam lock which guarantees fixed and never shifting setting when pressure lock is released.

#30-61	Chrome Steel	.001" & 1/128"	$14.00
#30-64	Chrome Steel	.001" & 1/20 mm	$14.00
#30-62	Stainless Steel	.001" & 1/128"	$16.50
#30-65	Stainless Steel	.001" & 1/20 mm	$16.50

Leather cases supplied free of charge with each caliper. You pay postage on C.O.D. Money back guarantee. Other models up to 12" available. Send for our catalog of fine imported pliers.

$9.75 POST PAID

INTER-CONTINENTAL TRADING CORP.
90 WEST STREET • NEW YORK 6, N. Y.

WALKIE TALKIES $4.99 Set of 2
POCKET SIZE —ELECTRONIC VOICE POWERED

No tubes, batteries, adjustments, license or permit needed! Guaranteed to work anywhere up to 1/4 mile with extra wire. Swell for room to room—garage to house, etc! Your own private, talk-listen phone. Not war surplus. Brand new. Guaranteed. Two complete units with wire —READY TO USE!

SEND $1.00 deposit and pay postman $3.99 plus postage charges or send $4.99 for postpaid delivery. Sold only by mail from:

MIDWAY COMPANY, Dept. WPS-1 Kearney, Nebraska

BANDSAW OWNERS - SAW STEEL & OTHER METALS

Change over your two-wheel bandsaw for wood, plastic, or metals in only two minutes. (Up to 16" wheel diameter) Precision-built gear reducer, self oiling bearings, rigid design with all necessary parts included. State wheel and drive shaft diameter..... $18.95 P.Pd.
Finest quality steel cutting bandsaws 1/4", 3/8", or 1/2" widths $.35 per foot. State width and length.
10 DAY MONEY BACK GUARANTEE! CHECK OR MONEY ORDER
HAYLEN PRODUCTS
194 Rivermeadow Drive Rochester 18, N. Y.

MONEY MAKER MACHINE

Here is the greatest Fun Maker of the century. You merely feed strips of white paper between the rolls. You turn the knob and out come **real bills** of any denomination. No COD's please. Satisfaction or money back in ten days. A million chuckles. $1.00 Post Pd.

J. N. SALES CO.
74-23A 260th St. Floral Park, N. Y.

FREE—Amazing Book on
RHEUMATISM, ARTHRITIS

If you suffer the aches, pains and discomforts of Rheumatism, as manifested in ARTHRITIS, NEURITIS, SCIATICA or LUMBAGO, send today for the FREE Book. It reveals important facts about why drugs and medicine give only temporary relief without removing causes. Explains fully a proven, specialized system of treatment that may save you years of distress. No obligation. Write for this FREE Book today!
BALL CLINIC, Dept. 36, Excelsior Springs, Mo.

HANDSOME RETURNS

in Mail Order. Start on a shoe string and earn a substantial income. Details, ideas, know-how in **"HOW TO START YOUR OWN MAIL ORDER BUSINESS."—PRINTERS' INK:** "A Well Organized, Compact and Practical Guide."—**KIPLINGER'S MAGAZINE:** ". . . presents a made to order opportunity to the shy but resourceful person. . . ."—**FORBES MAGAZINE:** ". . . Shows how to start with a minimum capital outlay. . . ."

Only $2. Refund privilege.

STRAVON PUBL., Dept. T671
113 West 57th Street N. Y. C. 19

WHAT GOOD IS A TIRE WITHOUT A TUBE?

TUBE GIVEN WITH EVERY TIRE AT NO EXTRA COST

Why Pay More!

WINTER SPECIALS—AT LOW PRICES
SAVE TIME—SAVE MONEY—SEND THIS AD

GOOD USED TIRES—NOT RECAPS
19 YEARS AT THIS ADDRESS
BE WISE—A TRIAL OF ONE
TIRE WILL CONVINCE YOU.

EVERYBODY MAY TAKE

10% off ON EVERY TIRE

20 MONTHS WRITTEN GUARANTEE

600-16	$4.10	820-15	$5.35	600-20	$7.10	32x6(8)	$8.55
650-16	5.55	700-15	4.50	650-20	7.85	32x6(10)	9.85
700-16	5.00	670-15	4.45	700-20	8.45	900-20	13.15
650-15	4.35	710-15	4.65	750-20	8.55	1000-20	13.75
760-15	4.95	550-17	4.45	825-20	14.65	1100-20	13.85

EXTRA SPECIAL 30 MONTH WRITTEN GUARANTEE

600-16	$5.35	475-19	$4.85	700-15(6)	$8.95	700-20	$11.00
600-16(6)	6.45	640-15	5.05	750-16(8)	10.75	750-20(10)	15.45
650-16	5.85	670-15	5.55	700-17	9.95	750-20(8)	15.05
650-16(6)	7.35	710-15	5.75	750-17	11.75	825-20	18.35
700-16	6.45	760-15	6.05	750-15	13.95	900-20	17.25
750-16	9.25	800-15	6.55	825-15	12.95	1000-20	17.75
525-18	5.00	820-15	6.65	600-20	8.75	1100-20	19.55
550-17	4.95	670-16	6.35	650-20	10.25	1000-22	19.45
650-15	5.35	760-16	7.15	32x6(8)	11.15	1100-22	20.45
700-15	5.45	700-16(6)	7.65	32x6(10)	11.75	1200-20	29.95
White Walls $1.00 Extra					Military treads 750-20		16.15

Thousands of tires shipped all over U. S. A. All tires shipped F.O.B. Phila. Send Check or M.O. with this ad. Dept. S.

STANDARD, 834 N. Broad St., Philadelphia 30, Pa.

Trains & Travel Magazine

Get this interesting and exciting picture-packed magazine. Read about fascinating places and railroads that reach them! 50c at larger stands. **Special Offer!** Send $1 for 3-month subscription. Act now!

Trains & Travel Magazine Dept. 1673A, Milwaukee 3, Wis.

BOYS! MAKE YOUR OWN RADIO

Make your own simple, tubeless, batteryless Crystal Radio. SEND 25c for a GENUINE MELOMITE CRYSTAL with complete illustrated instructions for making your own set. Crystal sent postpaid with instructions and our own publication, "THE MAGIC CRYSTAL" which is full of news, diagrams, questions and answers of interest.

SEND 25c FOR YOUR CRYSTAL TODAY!

ALVA ALLEN RADIO Dept. PS-1 Clinton, Mo.

NO TANKS USED
NEW SIMPLIFIED METHOD
SUCCESS IN THE ELECTROPLATING BUSINESS

ELECTROPLATE

ANY OBJECT IN HOME, SHOP, GARAGE OR START YOUR OWN WELL PAYING ELECTROPLATING BUSINESS

TOOLS
TELEVISION
HOUSEHOLD ARTICLES
JEWELRY
BABY SHOES
AUTO PARTS
& 100 ARTICLES

NOW, using **NEW** plating kit, it's easy to electroplate any object. Complete kit and instructions on plating metal and non-metal objects, with nickel, copper, silver, gold, etc., plus full data on obtaining all the business you desire and make **BIG MONEY** full or spare time. **ONLY** $4.95. **SEND NO MONEY**—everything sent **COD** plus postage—OR send $4.95 now and receive it postpaid. Money back in 7 days if not satisfied. **M. Z. NATIONAL SALES CO.,** 113-F West 42 St., N. Y. 18, N. Y.

For your NARROW FOOT!

Sizes 6 to 16

Men with narrow feet! Enjoy a perfect fit at no extra cost. We specialize in narrow widths only. AAA to B, sizes 6 to 16. Write TODAY for FREE information about wide style variety.

Write for FREE Catalog

NARROWS Inc. N8, BROCKTON, MASS.

World's Most Complete! 1953 ALLIED TV & RADIO CATALOG

FREE!

Everything in TV & Radio At Lowest Prices

236 PAGES VALUE-PACKED

Everything for Experimenters, Builders, Amateurs, Servicemen, Engineers, Soundmen

Send for ALLIED's big 236-page value-packed guide to *everything* in TV and Radio! Custom TV chassis, TV accessories, FM and AM radios, Amateur supplies, High-Fidelity Sound, P. A. Systems, recorders, test instruments, builders' kits—plus the world's largest stocks of electronic parts, tubes, tools and books. Get more for your money—send today for your FREE 1953 ALLIED Electronics Catalog!

SEND FOR FREE CATALOG

ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-A-3
833 W. Jackson Blvd., Chicago 7, Illinois

☐ Rush FREE 1953 ALLIED 236-Page Catalog.

*Name*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

Be sure to get the Original Authentic

OLD TIMERS

1902 "AIR COOLED" FRANKLIN
Kit with instructions $2.50
Length 7"

"Old Timers", the original Antique Automobile models of perfection, are designed with the collector in mind. Outstanding masterpieces of nostalgic realism that capture the hearts of lovers of true, historical, authentic Antique Automobiles.

Only in "Old Timers" Antique Auto kits will you find the quality so much in demand by discriminating model builders.

"Old Timers" Antique Auto kits are sold at leading Hobby, Toy and Department stores, or order direct—add 25c for postage and handling. Write for free color catalog containing fifteen additional models.

1913 MERCER RACEABOUT
Kit with instructions $3.95
Length 9¼"

1904 OLDSMOBILE
Kit with instructions $1.95
Length 6"

OLD TIMERS
SCRANTON HOBBY CENTER
Dept. A28, 315 Adams Ave., Scranton 10, Pa.

MAN WANTED

IN EACH COMMUNITY

Become the "Seat Cover Man" in Your Locality with America's Greatest Line of Auto Seat Covers

COVERS FOR YOUR OWN CAR GIVEN AS BONUS!

AMAZING MONEY MAKING OPPORTUNITY WITHOUT INVESTMENT

Want extra money—plenty of it day after day? Then rush your name and address at once for Free Sample Outfit that will start you taking orders from car owners everywhere for Key expertly tailored Auto Seat Covers. EXCLUSIVE NEW PATTERNS to fit every make and model car. No one can compete with you. In wide choice, in quality—and in expert tailoring that makes covers fit like a pair of gloves—and when you quote prices that are only a fraction of what the customer expects to pay, brother! You make money hand over fist writing up the fast orders! Line includes nationally advertised sensations like BLACK EBONY Saran, beautiful BAMBOO, brilliant FIESTA, colorful BULL FIGHTER PLAIDS, plus many other exclusive patterns to choose from, all at unbelievably low prices.

RUSH NAME FOR FREE OUTFIT
Give MAKE, YEAR and MODEL of YOUR CAR

No experience needed. Make all the extra money you need easily just by showing! Every car owner a "hot" prospect. YEAR AROUND STEADY PROFITS. No investment to make. Actual seat covers given to producers as a bonus for OWN USE! Write for Free Selling Kit valued at $2.00 and actual samples TODAY!

KEY PRODUCTS CORP., Dept. 6-A, 800 N. Clark St., Chicago 10, Ill.

WAR SURPLUS BARGAINS

$500,000.00 INVENTORY for QUICK LIQUIDATION

Surplus items—hundreds of them for home, shop, factory, farm and outdoor use. New items, used items, reconditioned items—all at tremendous savings—all priced for quick sale.

PAGE AFTER PAGE OF VALUES

This big catalog shows page after page of amazing money saving values. Write for your copy today. Send 10c to cover postage, mailing, etc. Write today!

10c

SEND TODAY FOR YOUR COPY

STARK'S 309 So. State St. Dept. PS-153 CHICAGO 5, ILL.

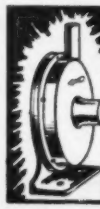
EXTRA MONEY PLAN IN FINE BUSINESS!

Exciting new easy-to-follow plan shows how to make big, steady money in your own full or spare time shoe business. We furnish FREE *everything* you need to start making money right away! You handle famous Air-Cushion shoes wanted for special comfort features. 150 fast-selling styles for men, women in dress, sport, work shoes including special kinds of shoes for different occupations. 3 easy sales a day brings up to $84 a week EXTRA! Amazing range of sizes and widths. Fit customers stores are unable to take care of. Start by selling to your friends, neighbors, and relatives. EVERYONE is a prospect. Rush name and address on postcard TODAY for exciting Plan and FREE SELLING OUTFIT!

Write TODAY!

CONSOLIDATED SHOE SYSTEM, Dept. CD-137, Chippewa Falls, Wis.

PUMP WATER *FAST!*



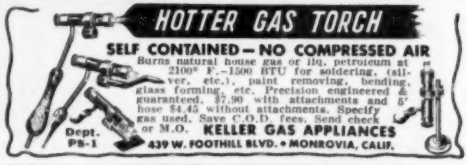
DRAIN WASH TUBS, CELLARS, CISTERNS IRRIGATE—FILL TANKS—DRAW WELL WATER

Pumps 2800 GPH. 420 GPH at 75' High or 1600 GPH from 25' well. Sturdy, Rustproof Alloy Metal. Six Blade Impeller. Uses any 1/8 to 1/2 H P Motor. Will not leak or clog. Fits any garden hose. Immediate Money Back Guarantee. Send Check, M O, or C.O.D.

8.95 IN U.S.

MOORE MANUFACTURING CO.
SWEDESBORO 2, NEW JERSEY

HOTTER GAS TORCH



SELF CONTAINED—NO COMPRESSED AIR

Burns natural house gas or liq. petroleum at 2100° F.–1500 BTU for soldering, (silver, etc.), paint removing, bending, glass forming, etc. Precision engineered & guaranteed. $7.90 with attachments and 5' hose $4.45 without attachments. Specify gas used. Save C.O.D. fees. Send check or M.O.

Dept. PS-1 **KELLER GAS APPLIANCES** 439 W. FOOTHILL BLVD. • MONROVIA, CALIF.

YEAR 'ROUND ANY CLIMATE NO EQUIPMENT

Fabulous Profits At Home... Raising

ORCHIDS

RAISE THEM AT HOME FOR PROFIT & PLEASURE. Fill your home with riotous color of these beautiful Tropical flowers. Louis Schirmer, the Dean of American Orchid Growers shows you how! World's most thrilling hobby—most profitable home business. A single Orchid plant may multiply into HUNDREDS—each as valuable as the first. Raise gorgeous Cattleyas, exquisite Cymbidiums, amazing Epidendrums on a card table in your living room, any climate. Big-profit orders come from Homes, Florists, Gift Shops, Dept. Stores, Etc.—also Mail Orders. **GROWING STOCK & INSTRUCTIONS SENT AT NO RISK.** Complete, illustrated, step-by-step secrets of the experts in simple "show-how" language—**INCLUDING** Cattleyas, Cymbidium and Epidendrum plants—all you need to start at home. FREE—full details—**SEND NO MONEY.** Write today. **TROPICAL FLOWERS,** Dept. 2D, 601 S. Vermont Ave., Los Angeles 5, California.

Vip's HAIR TYPES

PLASTER DISASTER. **Hair so "plastered down" it's hard to comb or cut? Switch to Fitch IDEAL! New IDEAL'S secret agent grooms without matting or gluing . . . makes thin hair look thicker, thick hair look *naturally* neat. Not an animal, vegetable or mineral oil. *You can't see it, feel it, smell it!* Put IDEAL on . . . it's gone! All that's left is all-day grooming.**

Get New Fitch *Ideal* Hair Tonic

"GREATEST GROOMING DISCOVERY SINCE THE COMB"

YOU SAVE $$$$ - WITH THESE PLAN BOOKS!

Either you or your contractor can build from our plan books. Money spent in pre-planning more than pays for itself in savings and happiness with the finished results. A few dollars now will save you hundreds in construction costs later.

You'll get wonderful, new, exciting ideas from these books—so order today!

New! Ranch and Country Homes, $2.00
Hundreds of new ideas with accent on ranch and country styles. Just off the press.

Harmonious Homes $1.00
Mostly homes but some income property, for all types of construction. Most flexible home plan book now in print!

Small Homes — Volumes I, II, III, $1 ea.
Packed with plans for distinctive small homes.

SPECIAL OFFER —
All 5 volumes listed above for only **$4.50**
Builder-endorsed Blue Prints as low as $15 (meet FHA requirements)

COMPLETE HOME PLAN SERVICE 17261-77 OSBORNE ST., NORTHRIDGE 1, CALIF.

NO C.O.D.'S PLEASE

WILL YOU BE ARRESTED ON YOUR TRIP TO MEXICO?

FOR EXCEEDING THE SPEED LIMITS. AVOID EMBARRASSMENT AND EXPENSE.

Buy a "CONVERTERKIT" today. Converts your speedometer so it will read in both miles and kilometers. Anyone can apply in ten minutes. No skill needed. Fits any speedometer. Does not alter your speedometer. Easily removed. Kit consists of nine Decalcomania figures and instructions.

Distances in Mexico are measured in kilometers. Traffic signs give speed limits in kilometers. Your speedometer, with its English miles, is incorrect in Mexico.

Don't break the law. Know your speed. Be safe. Send $1.00 TODAY. Kit will be mailed postpaid, in U.S.A. Seven day money-back guarantee.

R. W. Phillips & Sons, Room 1, Phillips Bldg., Branscomb, Calif.

Like thousands this reader says, "I would not be without Lawn Care. It's rendered a great service to us. Incidentally, we have the finest lawn on the street."

It's FREE!

PEOPLE WITH THE FINEST LAWNS READ *Lawn Care* T M REG

It's as simple as that! *Lawn Care* tells you how to get rid of ugly weeds and other turf pests—how and when to feed grass—in short, *Lawn Care* outlines the year 'round program for outstanding lawn beauty. It's easy to get *Lawn Care*—a card will start your free two-year subscription. Just write . . . O M *Scott* & SONS CO

19 Spring St, Marysville, Ohio *also Palo Alto, California*

AMERICA'S NEWEST $$$$$ HOME BUSINESS!

Real live ORANGE TREE Full grown, but only inches high. Notice the tiny oranges you can actually pick and eat—blossoms, too. Easy to grow in any climate.

Earn Big Money—SPARE TIME!

GROW LIVING "MING" TREES

- NEW Amazing HOME-BUSINESS!
- NEW Fascinating HOBBY!

CASH IN ON ANCIENT ORIENTAL SECRETS

Never before has such a PROFITTABLE OPPORTUNITY come to light. Centuries ago, Oriental royalty astounded the world by growing actual LIVING miniature "dwarf trees". These fabulously beautiful trees were desired by all other countries, but the Oriental Emperors jealously guarded their growing secrets. The death penalty was demanded if anyone grew dwarf trees, or gave away the growing secrets. However, Americans in World War II succeeded in purchasing some specimens and brought them to America—NOW THE SECRET IT OUT—and promises to be one of the most profitable spare-time home-businesses ever. Get all the facts! Mail coupon below today.

GROW THEM *AT HOME!* IN YOUR SPARE TIME! NO EXPERIENCE NEEDED!

Start your own Business! If you've ever planted a garden—you know the wonderful sense of accomplishment you feel. Growing actual living miniature trees is A HUNDRED TIMES MORE FASCINATING—yet, can be extremely profitable because these miniature specimens are new and rare...and anything new and rare means *big prices* and *big profits* for those offering it first.

NO LARGE INVESTMENT—NO OVERHEAD

You can *start on a shoestring* because you start with seeds costing *"pennies"*, but sell trees for *"tens of dollars"*. Mother Nature makes money for you. You don't need a lot of equipment or space either. Raise hundreds of trees in your house, yard, garage or window sill—you don't need much room.

TAKES ONLY A FEW MINUTES A DAY

NO LONG HOURS of tedious work—NO STUDYING of detailed instruction courses are necessary. Take care of dozens of trees in 5 minutes daily. Keep your present job—have TWO INCOMES instead of one. Of course, you can grow thousands full time—*it's up to you.*

GROW IN ANY KIND OF CLIMATE

Even if the temperature gets as cold as -10°F. or as hot as 150°F. you can successfully grow your trees year around. They are easy to protect.

SOME SOLD FOR $1,000—EVEN $2,000 EACH

But $25, $50, $100 and more per tree is common. You pocket all the profit. YOU CAN HAVE LIVING TREES TO *SELL ALMOST AT ONCE.* Amazing new secret process permits you to *see results immediately.* No waiting months or years. Mail Free Seed Coupon Today.

IT'S EASY! TO GROW ALL KINDS OF TREES

Living Midget "Ming" Trees Are Becoming The

SENSATION OF ALL AMERICA

Orders are coming from all over! Living Ming Trees are fashionable, smart decorations everywhere.

HELP US FILL THE HUGE DEMAND!

- FROM HOMES—They're a "must" in all homes, as well as all new modern architecture building.

- FROM INTERIOR DECORATORS—They can't seem to get enough of them for their customers.

- FROM CLUBS, HOTELS, SCHOOLS, FLOWER SHOPS, ETC.—These rare and exotic trees are extremely popular and in great demand.

FREE! GENUINE SEEDS & ILLUSTRATED DETAILS

NATIONAL NURSERY GARDENS
8463 So. Van Ness Ave., Dept. N-1
Inglewood 4, California

Please *RUSH ME* FREE SEED AND ILLUSTRATED DETAILS. I understand I am under no obligation. This is a Free offer from you.

Name _____

Address _____

City _____ Zone _____ State _____

Classified Ads only 80c per word per insertion, payable in advance. Minimum ad 10 words. To be included in March issue, copy should be in our office by January 23. No cancellations accepted after January 15.

CLASSIFIED OPPORTUNITIES

POPULAR SCIENCE MONTHLY-351 FOURTH AVE.-NEW YORK CITY 10

1 AUTOMOBILES & MIDGET CARS

SAVE—California Custom Accessories headquarters. Buy direct from original designers. Chrome dash panels, electric push button door-trunk conversions, fender skirts, dual mufflers, lowering kits, speed-dress up equipment. 40 page catalog. Hundreds of photos—25c. Eastern Auto, 3319D South Grand, Los Angeles 7, Calif.

MAKE Cars use diesel fuel. $3.00 for plans. Refiner, Box 292, Columbus, Nebr.

"HOW to buy speed equipment without money." No selling. Information free. Newhouse Industries, Los Angeles 22.

PARIS And London Special Automobile Show issue of Automobile Topics now ready. Most complete magazine ever published covering all cars at foreign shows. Sample copy 50c, postpaid. Floyd Clymer, 1268-B South Alvarado Street, Los Angeles 6, California.

FREE Motor Magazines; Automobile Literature, old, new and foreign; glossy photos, dealer books, shop manuals—offered with non-profit organization. Write today; get on free mailing list. Auto Maniacs, Inc., Stockbridge, Michigan.

MAKE repair your own auto body. Polyester-Fiberglas. Catalog—10c. Airmailed—35c. Gem-O'-Lite, Box 68618, North Hollywood, California.

USE auto starter and battery. Convert child's car to electric. Plans $1.50. Weldomatic, Palm St., N. Providence, R. I.

FACTORY Tuneup Specifications for best performance, economy, all makes (Buick to Willys) 1940-1952. Complete data 25c. Goodheart-Willcox, 1321-B So. Michigan, Chicago 5.

2 AUTO SUPPLIES & EQUIPMENT

1953 EDITION. It's New! It's Different! Get world's largest Auto Accessory & Parts Catalog and save money. 100 pages. Over 50,000 items, including Hollywood Accessories, Hi-Speed Equipment, Rebuilt Engines, all parts and accessories for all cars and trucks. We have that Hard-To-Get part! Jam packed with bargains. Completely illustrated. Send 25c (refundable). J. C. Whitney, 1919-T Archer, Chicago 16.

LACHAPELLE'S Treatment. Canada distributor Master, Box 3, Station C, Hamilton, Ontario.

NEW and used guaranteed parts for civilian and Army cars and trucks. Largest stock in America. Mail orders. Pioneer Auto & Truck Parts Company, 788 W. 13th Avenue, Denver, Colorado.

BRUSH Plating Outfits connect to a battery. No tanks or shop required. Free particulars. Gunmetal Co., Ave. K, Decatur, Illinois.

GM71 Discarded injector parts wanted. Hogen, 7120 Carnegie, Cleveland, Ohio.

HYDRAULIC jack repair kits. Repair your own. Send for prices. Jack Parts Company, 2000A South Claiborne, New Orleans, La.

"SAVE $$"—Speed Equipment, Hollywood Mufflers, Duals, Manifolds, Cams, Chrome Accessories! "Souping Manual—Catalogue" 25c (Circular Free). Almquist Engineering, Milford 12, Pennsylvania.

CAR Owners! Now, Micro Nut—Free 30 day trial. Add 5,000 more miles per tire. Stop road wander—break squeak—repair bills. Satisfaction Guaranteed or money back. $3.00 prepaid. Send make and model. Auto Industries, Dept. B, Box 12055, Los Angeles 26, California.

CONVERT headlights into foglights in 5 seconds, polaray lens invention. $3.00. Battery filler cups, feeds water automatically as battery needs it, prevents costly repairs. $1.50. New discovery ends battery trouble, adds up to 18 months more life, faster starting in below zero weather. $1.50. General Mdse Co., 391 Hoboken Ave., Jersey City 6, New Jersey.

INCREASE! Gasoline mileage Three to Five more miles per gallon. Guaranteed Gasoline Vaporizer, also Increases Power, Easier starting. $3.50. Turb-O-Vane, Stockton, Calif.

LACHAPELLE'S Treatment. Agents distribution, warehouse. Dillon, Box 323, Bridgeport, Ohio.

SHIM head gaskets .020 copper for all cars V8's $7.75, six cylinder $6.00. Linden Monogram, 195 Beach Street, Malden, Mass.

"HELL'S Bells" for automobiles. Provoke attention. Amazement. Laughter. Free literature. "Winco's," Box 9525, Dallas, Texas.

VISOR Clip. Patented device. Fits visor. Holds maps, pencil, paper, etc. Delightful convenience. Long service. Mailed promptly. Only 40c. R.E.K. Mfg., 8530 Woodward, Detroit 2, Michigan.

HI-Compression Heads $18.95 up. Most Cars. State Model. Auto Parts Service, West Salem 3, Ohio.

SPEED equipment from the world's largest distributor. Huge catalogue 25 cents. (Illustrated literature free.) Dealers-wholesale. Newhouse Automotive Industries, Los Angeles 22.

LIGHT your Dynaflow Dial, kit $1.50; Powerglide kit $1.50. M. Gaiser, Box 25K, Kokomo, Indiana.

HEADLIGHT Guards. Stops stones. Rims and woven wire chromed. Hinged for cleaning headlights. Fits seal beam equipped cars also MG-TD's, Jaguars. $6.95 pair. Dobard Products, P. O. Box 5194-PS, Detroit 35, Michigan.

VACUMITE car vacuum cleaner $3.98. Request interesting details. William Wern, 333 N. Michigan, Chicago 1, Illinois.

MAGIC Glass cleans ice, snow, sleet from windshields. Cannot harm windshield. $1.25 postpaid. John Virag, 480-S Spruce St., Bridgeport 5, Conn.

SAVE Money make your own Tune Up Oil, Chrome Polish, Radiator Cleaner. Complete Instructions 50c. Ralph Veit, La Honda, Calif.

NEW! The Crimson Analyzer. Checks plugs, ignition, points, condenser, coil. Locates high tension trouble faster than any other known method. Only $3.29 Postpaid! C.O.D.'s Welcome. Money-back guarantee. Order today!! N. H. Schulle & Co., 1119 San Antonio, San Marcos, Tex.

MILES or Kilometers—Which?? A "Must" in Mexico. See Page 73.

EMERGENCY Skid Chains. On and off in Seconds. No muss. 600x16 $2.25 each—6 for $12.50 Prepaid. Free circular. Box 134, Verona, New Jersey.

CAR burning oil? Losing compression? Try Clifford's Compression Seal. $2 Postpaid. Clifford's, 1329 Seventh, Aurora, Ill.

MoS2 LUBRICANT protects moving parts. Write Molyplate, Box 303, Palo Alto, California.

START your car instantly in zero weather with Quik-Start carburetor preheater. Easily installed. Guaranteed. Free information. White's, Catawissa 2, Penna.

MOTORIST save gasoline by Vacu-mating overrich mixtures. Fits all cars. For Free particulars write Vacumatic, Dept. 1983, Wauwatosa, Wisconsin.

ELECTROPLATE autoparts, novelties, mirrors. Easy, inexpensive home processes. Free booklet. Tyco Metals, Box 13231-FC, Houston 19, Texas.

SEND for Free Life Membership Card. Economy Methods. "Water Burners of America," La Verne, California.

LACHAPELLE'S Treatment. Patented. It puts babbitt-type bearings on the pistons, for a better motor for $3.00. Write. Ferns Products, 8120-D Walnut Dr., Los Angeles 1, California, for free information.

INCREASED Mileage Proven! America's Latest Guaranteed Odd Gas Saver! Everything for 25c. Ganus Enterprises, 1815-C Fairview Ave., Augusta, Georgia.

DEGREE wheel to set hi-lift camshaft net $9.95 postpaid instructions included. Speed equipment wholesale and retail catalogue 25c. Honest Charley Speed Shop, Box PS3086, Chattanooga, Tenn.

OIL-Vuer, Vital Link between oil filter and motor. Annealed Glass Dome cuts oil inspection to seconds. Easily attached to all filters with external lines. Thousands in use. $4.95 postpaid or send $1.00, balance C.O.D. Guaranteed. Rogers Automotive Supply Company, Box 23, Station C., Pasadena, California.

CHEVROLET Owners: Stop tappet noise with Kaye Tappet Silencers. Quality product. Easy to install. Complete set $5.95. Kaye Products, 1321C So. Layton Blvd., Milwaukee 15, Wisconsin.

3 AUTO TRAILERS

BUILD your own trailer! Plans for all kinds. Illustrated catalog 10c. Jim Dandy, 125-S Wausau, Wisconsin.

TRAILERS. Build-it-Yourself. Telescoping and Conventional Models. Slip-on Coach for Pickup Trucks. Information, Pictures 10c. Comstock Trailers, 585S, Parsons, Kansas.

4 MOTORCYCLES, BICYCLES AND SUPPLIES

RECONDITIONED motorcycles and motors. Chromium accessories. Complete stock Indian parts. Expert rebuilding. Fast service. Indian Motorcycle Sales, Kansas City 27, Mo.

SERVICYCLE $10; Indian Scout $45; Comet motorscooter $20; Whizzer motor $15; Midget car $75. Four airplane tires $3. (Mailorder only). Send 25c for catalogue Number 51 just out, listing the above and hundreds of other bargains in new and used motorscooters, midget cars, homebuilders parts, plans, etc. (35c by first class mail). Midget Motors Directory, Athens, Ohio.

WHIZZER $20; Servicycle (good tires) $20; Motorbike conversion kit $25; Cushman motorscooter $25; Harley twin $25. Rush 25c (35c first class mail) for special circular #953 listing many other amazing bargains in motors, midget cars, motorscooters, motorbikes, etc. Associated, Box 1764-CS, Toledo, Ohio.

NSU Motorcycles, Motorbikes 1953 NSU-Lambretta Motorscooters. Seven models (100cc-500cc). Fast parts service. Ask for folder. Some Dealerships open. Butler & Smith Trading Corp., 117 West 63rd St., Dept. S, New York City.

WHIZZERS $20; Midget car $15; Motorscooter belt drive $6; 3-wheel scooter car $39.50. Send 25c (35c first class mail) for special circular #22 jammed with sensational bargains in wheels, motors, clutches, motorscooters, midget cars, motorbikes, etc. Gail, 538 Erie, Toledo, Ohio.

"BUZZZZ" Magazine. Describes, Illustrates Worldwide Motorcycling. $2.00 year, Sample 20c. 5424-B Sawyer, Chicago 25.

REBUILT Gasoline Engines. $17.00 to $37.00. Cauffiel Motor Industries, Temperance, Michigan.

MOTORCYCLE Bargains. New & Used Parts, Early & Late Models, Mail Orders. Harley Davidson Sales & Service, 813 Ohio Street, Wichita Falls, Texas.

5 AVIATION

PROPELLERS, plans, supplies, for snow sleighs-air boats. Catalog 25c. Banks-Maxwell, Box 3301G, Ft. Worth, Texas.

FAMOUS aviation ground school training manual "From the Ground Up" covers elementary Theory of Flight, Meteorology, Airmanship, Navigation, Radio, Engines, Airframes, C.A.A. examination questions. 34,000 copies sold. Send $2.75. Dept. "B" Aviation Service Corporation, Port Credit, Ontario.

6 BATTERIES, GENERATORS, ETC.

EDISON Nickle odorless storage batteries. 12 to 600 ampere hour. Any voltage. Long guarantee. Literature. Hawley Smith Co., Croton Falls 2, New York.

7 ELECTRICAL SUPPLIES & EQUIPMENT

LAMPS—25c brings bargain parts catalog containing instructions for electrifying oil lamps, vases, etc. Gyro Lamps, 5402B Clark, Chicago 40.

CLOSE-Outs. Supply Limited. Order Direct. Big Chromed Hostess Microphones $8.95. 12" Jenson Electro Dynamic Speakers $12.50. 110 V. Turntable & Pickup less case $7.95. Big Electrical Mixture, Switches, etc. $4.95. 1/16" to ¼" 10 Chrome Drills & Case $1.95. Enclose postage. 20% C.O.D. Card's Wholesale Warehouse, 6221 Edgewood Drive, Niagara Falls, New York.

LAMP Supplies — Wholesale — any amounts. Prompt shipment on all parts for repairing and building lamps. Illustrated catalog 15c. Brown Specialties Co., Box 501—Wellston Sta., St. Louis 12, Mo.

ELECTRIC Pencil—Writes, engraves all metals. $2.95. Reb Industries, 265-EC, Elmhurst, Illinois.

ELECTRIC Pencil: Engraves all Metals. $1.50. Beyer Mfg., 10511-C Springfield, Chicago 13.

FREE—War Surplus Catalog—We sell for Less. Prices slashed on Welders, Motors, Generators, Hydraulics, Pumps. See ours First. LeJay Company, Minneapolis, Minnesota.

8 WELDING, SOLDERING

A.C. Welders. Four sizes. Lowest Prices. Free Literature. Holgerson's Service, Canton, Kansas.

ACETYLENE Welding Outfits new $49.00; used $29.00; Arcwelders $49.50; Eagle Welding, Dept. 42, 5085 Broadway, Chicago 40, Ill.

9 MACHINERY, TOOL SUPPLIES, ETC.

MOTOR driven rotary Hone sharpens all Keen Edge tools. A must for all shops. Immediate delivery. Moore Industries, Fredonia, Pennsylvania.

VERNIER Calipers, Height Gages, Micrometers, Dial Indicators, Surface Plates, Precision and Production Tools. Brand Tool Company, 907 S. Victory Blvd., Burbank, Calif.

FREE! Complete catalogs of precision tools for any job. Big stocks—famous brands: Lufkin, Starrett, Brown & Sharpe. Immediate delivery. Wide selection. Write for your copy today! Mid-City Hardware & Supply Co., Dept. PS, 318 South Halsted Street, Chicago 6, Illinois.

POWER tools, equipment wholesale prices. Free bulletin. Homecrafters Cooperative, Grand Rapids 6, Michigan.

SAW Shops! Foley F61 Filer and Power Retoother. Like New. $235.00. 6714 Atoll Ave., No. Hollywood, Calif.

10 ENGINES, MOTORS, ETC.

WINDING Data, listing 225 motors, single and three phase $1.00. Motor Data, Box 7531, Kansas City 3, Mo.

ALTERNATING current Generators 3000 watt $95. 5000 $135. Motors ½ horse $15. ¾ $22. 1 $35. Butler, 1885 Milwaukee, Chicago 47.

REBUILT Gasoline Engines. $17.00 to $37.00. Cauffiel Motor Industries, Temperance, Michigan.

11 BOATS, OUTBOARD MOTORS

FULL size, cut to shape boat patterns, blueprints, 7½-38 feet. Illustrated "Build a Boat" catalog 25c (coin). "How to Build Boats" book $1.00. Cleveland Boat Blueprint Co., Dept. A-77, Cleveland 13, Ohio.

NEW, used, rebuilt marine motors. Marine conversions, fittings. Free Catalog. Stokes Marine Supply, Dept. 23, Coldwater, Mich.

OUTBOARD Motor Parts—New—Used for all makes. Send stamp for price quotation listing par s needed. Outboard Motor Mart, Inc., 229D State Street, Boston, Massachusetts.

LARGEST line of racing and pleasure inboard speedboat fittings and speed equipment. Hundreds of special items. Big illustrated catalog 25c. Debbold's Marine Supply, Lynwood 1, California.

NOW Faster Than Ever! Champion Boats—the choice of champions now available to you! Easy-to-read plans; easy-to-assemble kits; or easy-to-afford custom built speed boats. (18 models, outboard and inboard). Send 25c today for multicolored, illustrated catalogue. Champion Boats, 1524 W. 15th St., Long Beach, Calif. Dept. 23-A.

GET our big 224 page 1953 Marine Hardware, Boat Kit & Equipment Catalog. Send $1.00 for handling costs, refunded with first order. Garland Frasher Marine Sales, 540-F 31st Street, Huntington, W. Va.

CONVERT Fords and Jeep to 100% marine engines with Osco's world famous Convo-Kits. Deluxe catalogue 25c (coin). Oscomotors, 3627F Lawrence, Philadelphia 40, Penna.

MARINE Conversions, manifolds, water pumps, transmissions converted, reverse gears, etc., most complete line on the market. Barr Marine Products Co., 2706 E. Castor Ave., Philadelphia 34, Penna.

MARINE conversions for Ford and Jeep engines. Catalog 10c. Lehman Manufacturing Co., 972A Broad St., Newark 2, N. J.

CURE that leaking boat with Fiberglas—plastic covering. Ends caulking and painting. Nationally approved process. Complete instructions. New low prices. Industrial Plastics, 3807 Harrison, Oakland 11, California.

SAVE 2/3 Cost. Assemble your own boat. We furnish parts. No experience necessary. Rowboats, Cruisers. Illustrated Catalog 25c. Midwest Boat Company, Menomonee Falls 1, Wisconsin.

PERMANENT protection for your boat. Apply Polyester-Fiberglas coating. Catalog—10c. Airmailed—35c. Gem-O'-Lite, Box 6861R, North Hollywood, California.

PLANS: Inboard-outboard runabouts, cruisers, sail, Wood, plywood, welded steel. Advise requirements. John B. Clark, N.A., 329 Kenmore, Bay Village, Ohio.

BUILD marine engines with Federal Conversion Kits. Federal Marine Motors, 9011 Cottage Grove Ave., Chicago 19, Ill.

12 BODY-BUILDING COURSES, JIU JITSU & ATHLETIC EQUIPMENT

100 TRICK Knockouts for self defense. $1. 1c each Lincoln, 529 Main, Evanston 2, Illinois.

BUILD your own Barbells $3. Materials obtainable anywhere. Complete instructions $3—Body building course free. T. T. Barbells, Box 631, Cleveland 7, Ohio.

BARBELLS, Dumbbells, Exercise equipment. Courses. Free booklet. Good Barbell Co., Reading, Penna.

14 FIELD GLASSES, TELESCOPES

WAR Surplus Bargains. Binoculars, Telescopes, Sextants, Millions of Lenses, Prisms, Reticles, Eyepieces, Objectives, etc. Mail 10c for Big "Catalog CN." Send $1.00 for Stock CN-10-piece Lens Kit and Big Instruction Booklet. Edmund Scientific Corp., Barrington, New Jersey.

GIANT astronomical telescope complete with 6 ft. tripod, 45x, 100x (10,000 area magnification) eyepieces and sun projector lens. Full power, clear vision guaranteed. $15.00 f.o.b. factory. Suffolk Science Service, Dept. TC, Riverhead, New York.

BINOCULARS, telescopes, microscopes. Our 20th year of leadership in optical values. Bargain catalog free. Brownscope Co., 24 West 45th St., New York.

"FREE Catalogue! Thousand war surplus optical bargains. Lenses, Prisms, Telescopes, Binoculars, etc. Send $1.00 for 10 Lens Hobbyist Set and Project booklet. G. Jaegers, 691 West Merrick Road, Lynbrook, New York.

POWERFUL telescopes easily made. Lenses, image erector, focusing tube and instructions for making 40X, 100X, 200X and 400X telescope $6.00. Telescopic Cameras. Manorville 5, N. Y.

SAVE! Save! New Binoculars! Free Catalog. Free Book, "How To Select Binoculars." Write Today! Bushnell's, 43-P61 Green, Pasadena 1, Calif.

AMAZING prices, binoculars, telescopes, microscopes. Free trial. Folder. "Binocular Selecting" optical catalog free. Prentiss Importers, Mercury Bldg, West Los Angeles 25, California.

FREE 1953 40-Page, 3 color catalog! 67 different models! United Binoculars, 9043 S. Western, Dept. A-7616, Chicago 20.

GIANT 100 power completely assembled telescope and tripod. (10,000 area magnification.) No upside down images. $10.00 F.O.B. factory. Carl Jamer, Manorville 5, New York.

POWERFUL astronomical telescopes easily made. Perfect lenses and instructions; 45x and 100x—$3.50; 45x, 100x, 200x, and 400x—$6.00. Full power, clear vision guaranteed. Instructions alone 10c. Suffolk Science Service, Riverhead, New York.

REFLECTING Telescopes, completely assembled. 60X, $29.75. Guaranteed Observatory clearness. Free information. Skyscope, 475 Fifth Avenue, New York 17.

REFLECTOR telescope kits—Precision eyepieces, Mirror cells, Diagonal holders, Tubing, other optical bargains. Free illustrated bulletins. Esco Products, 911 Willow Ave., Hoboken, New Jersey.

PARADISE for Hobbyists. Microscopes, telescopes, supplies. Unusual cameras. Many other items. Free lists. Nassau Optical Co., 9 West Greenwich Avenue, Roosevelt, L.I., New York.

BARGAINS! Telescopes for sky hobbies, view homes. Binoculars. Microscopes. Giftwise, Box 704-B, Santa Barbara, Calif.

GIANT 100 Power telescope easily made for profit or pleasure. Instructions. 5 lenses, wholesale list, profit suggestions all for $3.00. Carl Jamer, Manorville 5, N.Y.

MICROSCOPE Sale . . . Zeiss dissecting German Laboratory. Reichert, Spencer, Rasmussen-Reece, Amsterdam, New York.

15 SPORTING GOODS, GUNS, FISHING TACKLE, ARCHERY, TRAPPING

120 PROFUSELY illustrated pages, antique pistols, swords, daggers, armor, etc. 50c. Robert Abels, PS860 Lexington Ave., New York 21.

SAVE on Gunsmithing, Jap Conversions, Scopes, Loading Tools. Catalog 10c. Cougar Arms Company, 587 Ferris Street, NW, Grand Rapids, Michigan.

5,000 BARGAINS, firearms, binoculars, war relics, catalog 50c. Smith Museum, Runnemede, N. J.

BOWS And Arrows! Raw materials. Send 5c for catalog. Illustrated Handbook "How to Make and Shoot Archery Tackle" 75c. Stemmler Co., Dept. 1, Manorville, L. I., New York.

MOLDS: Handled and Hinged for Fishermen to make their own Sinkers, Jigs, Squids and Casting or Spinning Lures. Entertaining and profitable. 400 sizes and styles from $2.95 up. Special molds made to order. Free catalog. Sweet's Molds, Tonawanda 3, New York.

FISHERMEN—make your own sinkers with our molds. Free illustrated booklet. Reading Instrument Co., Box 78, Reading, Penna.

JAP rifles altering American shells $6.00, catalog 5c. TP Shop, West Branch 10, Michigan.

AGRAMONTE Offers 2000 guns—antiques—sporting guns, New, Used. Trade. Bargain list 25c. Ed Agramonte, 201 Warburton, Yonkers 2A, New York.

OVER 500 guns, modern, obsolete. List 10c coin. Ed Howe, 26 Main, Coopers Mills, Maine.

CUSTOM Gunsmithing, Restocking, Rebluing, Jap Conversions. E. M. Bryant, 1113 So. Lea, Roswell, New Mexico.

BUY Guns, Sell guns, Foreign ammunition, Knives, Crossbows, Binoculars. Catalog 10c. Ashton, 1517 Gardner, Hollywood 48, California.

17 DOGS, BIRDS, HAMSTERS, RABBITS & PETS

MAKE Big Money! Raise Chinchilla Rabbits. Cash Markets Supplied. Write Today! Rockhill Ranch, Sellersville 16, Pa.

RAISE Mink; Free booklet, pen, plans, inside "secrets" feed, care. Mink are money makers. Investigate today. Lawrence Molgard, Brigham City 13, Utah.

YOUNG Parrots—make fine talkers. Herb Miller, 1911-N, Lubbock, Texas.

700 BRED Mink booklet pen plans 20c. Lake Ontario Mink Ranch, Gravel Road, Webster, New York.

FAMOUS Angoras, Chinchillas, White Giants! World's most profitable rabbits. Finest heavy-producing prize-winners. Catalog free. P. S. Grinsteads, Edwardsville, Illinois.

RAISING Guinea Pigs, profitable. Booklet free. Taylors, B426B, Hapeville, Ga.

NATURALIST'S Catalog, 10c. Chameleon 55c. Newt 50c. 200 Mealworms $1.00. Quivira Specialties, Topeka 10, Kansas.

GOLDEN Hamsters, Pedigree Stock, Breeders, Laboratory or Pet Stock Shipped express Anywhere. Price list free. Charles E. Bowser, Smoke Run, Pa. Dept. H.

BIG profits raising pet hamsters in garage or basement. Write for free information. Southern Hamstery, Box P685, Gaffney, S.C.

WILD animal pets—scentless skunks, pet raccoons $20. Ringtail monkeys $37.50. Yellowhead parrots $50. Ray Singleton, Rattlesnake, Florida.

MAKE Big Money raising White Rats—Pleasant Work. Thousands needed weekly, send 25c for "How To Raise Rats" and circular. K Poultry Farm, Armada 10, Michigan.

18 FROG RAISING

"FROG Raising!" New Book tells how. Illustrated literature free. Broel-B, 1035 Marlborough, Detroit 15, Michigan.

COTTON-Tail rabbits, frogs, for sale. Vol Brashears, Berryville, Arkansas.

19 FARMS, OTHER REAL ESTATE

FLORIDA, New Lake County development adjoining Ocala National Forest. Best fishing, hunting. Safe from bombs. Nice homesites $245 at 10 monthly. Folder free. Winfree Vernor, DeLand, Florida.

CALIFORNIA Ranch Lands, 50c to $5 acre minimum bid. Farm-ranch-hunt-fish-retire. 10c brings illustrated land catalog, outline maps. Tax Land Sales, Box 2350BX, Hollywood 28, Calif.

STROUT Catalog—Free. Farms, Homes, Businesses. 31 States. Coast-to-Coast. 3,446 bargains. World's Largest. Our 53rd year. Strout Realty, 255-ZB 4th Ave., New York 10, N. Y.

FARM-Ranch Opportunities. Favorable conditions, Washington, Minnesota, Montana, Idaho, Oregon, North Dakota. Literature, farm descriptions, Specify which state. J. W. Haw, 120 Northern Pacific Ry., St. Paul 1, Minn.

FLORIDA Highway Ranchos—$345. Payable $15 monthly. Beautiful Country Estates on U.S. Highway 231. High and dry. In Famous Panama City Pleasure Resort Area. World's finest beaches. Many lovely lakes. Wonderful fishing, hunting. Grow fruits, berries, vegetables, flowers. Poultry. Cheap electricity. Desirable community. Fine investment. Free Booklet. Douglas Wood, Box 873, Houston, Texas.

CHEAP Homes, Lands in lovely, healthful mild, Ozarks. Free lists, literature. Write. Barnsley, Clarksville, Arkansas.

OZARK Guide, Eureka Springs, Arkansas. Magazine for homeseekers, tourists. Year, $1.50.

20 TREES, SHRUBS, ROOTS, HERBS

FRUIT Trees! Stark Bro's sensational new "Dwarfs." Also standard size exclusive patented, trade-marked varieties produce abundant, larger, better apples, peaches, pears. All fruit faster growing, quicker bearing. Also beautiful ornamental trees and shrubs. Get giant new Color-photo Catalog Free. Stark Bro's., Dept. 30013, Louisiana, Missouri.

MULTIFLORA Rose, the living self-repairing fence, ornament, erosion control, windbreak, snow fence. Rapid grower. Raise from seed. Free planting guide. Woodlot Seed Company, Norway 2, Mich.

21 POULTRY & SUPPLIES

POULTRY Farmers—Broiler Growers—Turkey Raisers read the new American Poultry Journal for latest ideas and greater profits. 12 months, 50c. Special offer, 4 years, $1.00. American Poultry Journal, 182 North Wabash, Chicago.

RAISE Turkeys the new way. Write for free information explaining how to make up to $3,000 in your own backyard. Address—National Turkey Institute, Dept. 57, Columbus, Kansas.

RAISE pheasants on the $100 week plan. Little capital and space can make you independent. Free details. Great Central Game Management System, Columbus 6, Kansas.

22 PROFITABLE OCCUPATIONS

$4 TO $10 Hour Spare-time in billion-dollar Adjustment field. Qualify Now! Write today. Universal Schools, S-8, Box 8202, Dallas 5, Texas.

DETECTIVES Earn Big Money. Excellent opportunity. Detective Particulars free. Write, Wagoner, P-125 West 86th, New York 24.

BE independent, be secure, have your own profitable business—earn $20.00 and more a day making beautiful, fast-selling lamps at home. No equipment needed. Illustrated course teaches you quickly. Course, parts catalog, wholesale price list—only $2. Gearon Co., Dept. 200-AI, 27 S. Desplaines, Chicago 6, Ill.

WANT A Diesel Job? New Opportunities to increase income. Higher Pay. More Money. We can help you Qualify. Tools. Shop method home training. Write today. Diesel Tractor Heavy Equipment Division, Interstate Training Service, Dept. 2A, Portland 13, Oregon.

"HOW to Make Money With Home Workshop" describes amazing methods used by hundreds of successful craftsmen. Tells what to make. How to sell workshop output spare time. Write at once for details. Craftsman, 115B1, Worth Street, New York City.

$10,800 PROFITS! Your own Mailorder Business! No Capital Risk! "Success Plan" (worth $2) Free! Write today! Treasury, 149 Storer, New Rochelle P-7, New York.

$5000 FROM half acre growing Ginseng, crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

SOCIAL Security Handbook. Benefits explained. Complete information. $1 per copy. Informational Services, Box 911K, Paducah, Ky.

UP To $200 Weekly! Work home, start spare time, small capital. Free booklet "301 Unique, Successful Businesses" tells how. Deumant Publications, 85-S Deumant, Kenmore 23, New York.

GROW living miniature trees from seed. 12" tall. Flower, bear fruit. Terrifically profitable hobby. Free details. Miniatures, 1020 Richman, Fullerton 11, Calif.

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan." American Buyers, 628-T Linden, Buffalo, New York.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay $3.50 Lb. We paid Babbitt $4,165 in few weeks. Free Book. Washington Mushroom Ind., Dept. 101, 2954 Admiral Way, Seattle, Wash.

ADDRESS Our Circulars! Immediate Commissions! Outfit—25c! Hirsch, Spring Valley 3, New York.

RAISE fishworms, easy, profitable, complete instructions 25c. Huffman's, Rives Junction, Michigan.

$40.00 WEEKLY. Make growing mushrooms. Dominion Patent 331,583. Free spawn with Order. North American, 169Y Yonge, Toronto, Canada.

REDY-To-Bild power mowers—$19.95. Parts list—Free. Smith Agency-52, Excelsior Springs, Mo.

PROFITABLE Year-Round Income upholstering automobiles. Diagrammed instruction manual shows easy way to make and install seat covers, door panels, headlinings, tops, etc. Only $2. Free literature. Purifoy Upholstery Service, P.O. Box 3042, Dept. B, Jackson, Mississippi.

RAISE Ginseng! Roots bring fortunes. Free Information. Fezler, Patchogue, N. Y.

PLASTIC Engraving, Carving Machine, —"Dupliscaler". Profits to $5 hour engraving plastics. Details, sample 25c. Desco Distributors, 6334-C Sepulveda, Van Nuys, Calif.

FREE Book "505 Odd, Successful Businesses." Work home! Expect "Odd"! Pacific—37C, Oceanside, Calif.

23 BOOKS & MAGAZINES

MAGAZINES (back dated)—foreign, domestic, arts, Books, booklets, subscriptions, etc. Catalog 10c. (refunded). Cicerone's, 86-22 Northern Blvd., Jackson Heights, N. Y.

ADULT Books—Illustrated Comic Booklets, 20 for $1.00. All different. Free gift with each order. V. M. Rogers, Dept. PS, Box 14738, Cimarron Station, Los Angeles 18, California.

AMAZING New Adult Book Bargains. Send dime. Paul Vallon, 63 Perry, New York 14, New York.

BOOKS—Booklets, Art, Humor, etc. Illustrated catalog 10c. Aladdin Book Co., 210-P Fifth Avenue, New York 10.

BIG Catalog, 1500 popular books. Bargain prices. Send 10c. Books Publishing Co., 56R West 24th, New York 10.

ADULT books, Tricks, "Illustrated Comics" 10—$1.00. Free Gift, Catalogue 10c. Rothleder, "102PSB" Cathedral Station, New York 25.

MAGAZINES—All dates found. Arnold Klein, 183 Scholes, Brooklyn 6, New York.

ATHEIST books. Catalogue free. Truth Seeker Co., 38 Park Row, New York 8.

BOOKHUNTERS! Scarce, unusual, miscellaneous books supplied. Atlantic Book Service, 2 Lawrence, Charlestown 29, Mass.

SPARETIME Profits Taking Subscriptions. All Magazines. Wholesale Catalog Free. Cassell Agency, Westfield 1, N. J.

BOOKHUNTERS! All Subjects. Send Wants! Jaher Book Service, 620-K East 178 Street, New York 57.

SELF Unfoldment Books and Courses: "The Mysteries", Mysticism, Occultism, Yoga, Philosophy, Theosophy, Freemasonry. Catalog. Jordan's, 1130 Keller Avenue, Louisville 13, Kentucky.

ADULT Book Bargains. Catalogue. Samples, 10c. Arkay, Box 2052, Los Angeles 53, Calif.

INTERESTING adult books—novelties—illustrated comic booklets 24—$1.00, catalogues 10c. Kogan, 1032PS Church Annex, New York 8.

RARE, unusual books—Americana, Ozarks. List 10c. Rayburn, Eureka Springs, Arkansas.

NATIONAL Geographic Magazines 1888-1952 Any Issue. Periodical Service, Box 465-PS, Wilmington, Delaware.

BACK-Date magazines. Specific issues; years. Arkell's, Northridge, California.

BOOKS New & Used at special prices. Save money. Write for list of fifty free catalogs on text and occupational subjects. Many rare and "out of print" titles. We Also Buy Books. Established 1902. Long's College Book Co., Dept. PS, Columbus 1, O.

BOOKS, self help, instructional. Many mint editions, collectors items. Free list. Mutual, Section 261, Wilhoit Building, Springfield, Missouri.

25 MAGIC TRICKS, PUZZLES, ETC.

FREE trick and large illustrated catalog —35c. Lerro's Magic, 8111 Fifth Avenue, Brooklyn 9, N. Y.

MAGICIANS', Gamblers' secrets exposed. Cards, Dice, Punchboards, Slot Machine. Catalog 10c. Book Co., Box 671, St. Louis 1, Mo.

NO 29 Edition Catalog 500 Tricks now ready. Send 15c for your copy, containing latest in good magic for pocket, parlor, stage. Douglas Magicland, Dept. 2, Dallas, Texas.

200 ELECTRIC stunts, 110 volts, $1.00. Cutting Sons, Los Altos, California.

TRICK Of The Year, "Magic Moneymaker", Fool everybody. Only $1.25. Catalogue, Sample 35c. Rothleder "102PST" Cathedral Station, New York 25.

MAGIC—Jokes. Big Magician's catalog 10c. Top Hat, 521X Main, Evanston, Ill.

MAGICIAN'S illustrated catalog and free trick 35c. Terry's Magic Studio, 1921 —66th Street, Brooklyn 4, New York.

BIG Fun kit! Tricks, jokes, novelties, books. Real Gay stuff. Howls galore. $1.00. Johnson, 414 McRae, Wilmington, N. C.

$1—PACKAGE of 7 tricks. Lists free. Paul Flayer Products, 38P Ward Plaza, W. Englewood, New Jersey.

512-PAGE catalogue of 2500 tricks, pocket, parlor, stage. World's Finest Magic. Send $2.00 for catalogue (refunded first $6.00 order). Kanter's, S-1311 Walnut, Philadelphia 7.

26 COIN COLLECTING

GET Profit and Pleasure in collecting old coins. Send 10c for 56-page illustrated coin catalog. You'll be delighted with it. Send for it now. B. Max Mehl, 374 Mehl Building, Fort Worth, Texas. Largest rare coin establishment in U. S. Established 53 years.

SET nine Japanese invasion notes for U. S. $2.00. Illustrated coin catalogue 25c. Shultz, Salt Lake 10, Utah.

HIGHEST prices paid for U.S. coins. Illustrated catalog only 35c. Robert Zurcher, Route 1, Box 51, Hillsboro, Oregon.

OLD Money Wanted. Will pay Fifty Dollars for nickel of 1913 with Liberty Head (not Buffalo). We pay cash premiums for all rare coins. Send 4c for Large Coin Folder. May mean much profit to you. Numismatic Co., Dept. 30, Fort Worth, Tex.

FREE! Foreign coin, banknote and Coin Collectors' Illustrated Catalog to approval service applicants. Send 3c postage. Tatham Coin Co., Springfield-50, Mass.

$10.00 EACH for certain Lincoln pennies. Indianheads $50.00. Send dime for booklet listing prices paid. Lincoln Coin Company D-404, Glendale, Arizona.

COOK'S Coin Chart guaranteed fastest, easiest, Most spectacular U.S. selling guide available. Send 25c. H. Cook, 32 Colt, East Hartford, Connecticut.

COIN Collector's Biggest Bargain. Huge Monthly Magazine and wooden nickel, 10c. Lawrence Brothers, Anamosa, Iowa.

BARGAINS! Rare Collection Contains United States Cent Before 1815, 1851 Cent, Half Cent, Flying Eagle Cent, 1863 Cent, 1865 Cent, Uncirculated 1909 VDB Cent, 1923-S Cent, 2c Piece, 3c Silver, 3c Nickel, Half Dime, Shield Nickel, 1883 Nickel, 1913 Nickel, Liberty Seated Dime, Liberty Seated Quarter, Liberty Seated 50c, Old $1.00 Bill, Civil War Cent, Jackson Cent, Confederate Money, Foreign Coin, Foreign Bill, Ancient Coin 1500 Years Old. Complete Buying-Selling Catalogue Everything $5.00. Columbus 50c—$1.00. Colonial Coin Before 1790—$2.00. 10 Different Large Cent $3.00. 20 Different Indian Cents $1.00. Everything $10.00. Catalog 25c. Worthycoin Corporation, (D-426), Boston 8, Massachusetts.

FORTY different Liberty head half dollars $39.50. Complete list U.S. coins for stamp. Johnson's, 644 E. Valerio, Santa Barbara 6, Calif.

27 OLD STAMPS WANTED

I Will Pay $100.00 each for 1924 1c green Franklin stamps rotary perforated eleven (up to $1000.00 each unused). Send 10c for Large illustrated folders showing Amazing prices paid for old stamps, coins & collections. Vernon Baker, PS-31, Elyria, Ohio.

28 STAMP COLLECTING

OPPORTUNITY! Gorgeous lot with Triangles, Diamonds, Giants, Midgets, Flags, Airmails, and Railroad Stamps. Also Guiana, Djibouti, Mongolia, Angola, New Caledonia, Etc. Everything only 10c to Approval applicants. Evden, 53 North Montgomery Street, Valley Stream 3, N.Y.

FREE—Illustrated Catalog! Kenmore, Milford C-58, New Hampshire.

AMAZING Offer! 200 United States stamps—including commemoratives, airmails, high denominations to $5.00—Only 10c to Approval Applicants!! Illustrated Bargain Lists free. Mystic Stamp Co., Dept. 55, Camden, New York.

FREE—Complete set of Famous Americans, Flags, Parks and Presidentials to approval buyers. Send 3c for 15 of the above stamps plus full particulars. Triboro Stamp Company, 145 Nassau Street, Dept. 201, New York 38, N. Y.

1,000 UNIQUE Colorful attractive mounted stamps 1c-2c each. Rushed. Niagara Stamp Co., Niagara-on-the-Lake 72, Canada.

300 STAMPS For Only 10c! This mammoth value includes Airmails, Pictorials; stamps from strange countries cataloguing up to 25c each!! Also approvals. Mystic Stamp Company, Camden 55, New York.

POLAR Bear Triangle; Giant George Washington, Six Colored Ecuador, Arctic Triangle, first American commemorative, Corsica, Devil's island, others. Everything free with approvals. Capital Stamps, Little Rock 10, Ark.

FREE Stamp Collection:—100 different stamps from Europe, Africa, Asia, Scandinavia, Balkans, etc., 3c to approval applicants. Tatham Stamp Co., Springfield 50, Massachusetts.

200 EXOTIC Japan Stamps—10c! Kenmore, Milford K-58, New Hampshire.

U. S. Army & Navy Heroes on Stamps; 10c with United States approvals. Locust, Box 305-A, Harmon-On-Hudson, N. Y.

200 DIFFERENT, including Roosevelt triangle, 5c to approval applicants. S. Avalon Stamp Co., Springfield, Mass.

FREE. Scott's International Album. Other big premiums. Full particulars with approvals. Raymax, 68-X Nassau St., New York 38.

FLAG Stamp—Free with hygrade U. S. approvals. Weniggman's, 1933 Patterson, Chicago 13.

ALBUM! Capacity over 1000 stamps! Only 10c! Stampmart, Hartford 1, Conn.

312 MIXED U. S. only 10c to "Gold Nugget" approval applicants! Nothing like them. Kessel's, Folsom, California.

NUDES Set; Colorful approvals—10c! Atlas, 2830-P Eisenhower, Racine, Wisc.

77 DIFFERENT United States—25c. Approvals. Utechts, 1143-A North Keeler, Chicago 51.

WOW! 203 All Different Germany 10c! Zeppelins, Semipostals, Airmails, High Values, etc. to new customers. Jamestown Stamp, Jamestown 509, New York.

WE give you—mammoth international albums, Scott's catalogues, hinges, complete accessories, when you buy our wonderful foreign approvals. Don't write unless you intend to buy. But don't buy elsewhere without comparing our more generous offers. Bargain Stamps, Santa Ana, California.

327 DIFFERENT Stamps 25c! Including Early Canada, Newfoundland, British Colonies, Vatican, Red Russia, Hitler Heads, Indian States, Animals, Airmails, French Colonies, rarities, unusuals. Every stamp different. Rare bargain only 25c with our Bargain Approvals. Money back guarantee. Niagara Stamp Co., Niagara-on-the-Lake 62, Canada.

VALUABLE Airmail book plus gorgeous world-wide airmail collection 10c. Includes $10,000 stamp, zeppelin, scarce triangle, many others with beautifully illustrated book, only 10c with choice approvals and bargain lists. Jamestown Stamp Co., Jamestown 707, New York.

81 MULTI-Colored Flags of the World—only 15c. Kenmore, Milford F-58, N. H.

WE Give Away—Your Choice Latest Scotts Albums; Catalogue and available philatelic accessories. Realize—You Get These Worthwhile Rewards When You Buy From Our Better Foreign Approvals. Write Today For Full Particulars Sent With Trial Approval Selection. Americas' Stamp Service, Riverside 2, Calif.

FREE! Big Illustrated Catalog listing everything for the Stamp Collector. Approvals. Harrisco, 204 Transit Bldg., Boston 17, Mass.

FREE! Powerful Magnifying Glass for 5c Post. Bargain lists and approvals. Jamestown Stamp Co., Dept. 202, Jamestown, New York.

MINT King George Coronations from 5 different British Colonies only 10c with approvals. Walter Welles, Box 1246-V, Church St. Station, New York 8.

GREAT Free Offer—Weird mosquito stamp, thrilling bicycle race, gorgeous orchid, colorful native drummer, gigantic diamond airmail, stamp albums, all to our approval buyers. Bell Stamp Service, Dept. W-4, Bell, California.

U.S. Collection—40 Airs, Commemoratives 25c! 10,000 Space Album $1.25! Robert Bristol, Collinsville, Conn.

FREE! Big United States stamp catalog—including value guide and identifier, plus check list. Hundreds of illustrations. Harris & Co., Boston 17-B, Mass.

PAYING High prices for approvals? If your collection numbers under 15,000 try our 1c and 2c approvals. In books of 1,000 different. Lots to choose from at lowest prices. Also special offer to customers. Clark Stamp Co., Dept. U-1, Muskegon Heights, Michigan.

COLLECTION At A Standstill? Let us show you our top quality 1c to 5c approvals. Many satisfied customers. Write today. References appreciated. Roseland Stamp Co., Dept. 9-D, Spring Lake, Mich.

RARE octagonal stamp, giant triangle, gorgeous diamond, also mammoth and midget stamps given to foreign approval buyers. Gifts with purchase including Scott's International $6.00 album, also latest Scott catalogues. Plymouth, Dept. A-3, Bell, California.

TWO Mint Pictorial Sets; San Marino, Vatican, 5c. Request approvals. Silas Stamps, Box 55-V, Triborough Station, New York 35, New York.

UNITED States Stamps! Bargains! Sullivan, 127-D East 4th, St. Paul 1, Minn.

GIGANTIC Collection Free—Includes Triangles—Early United States—Animals—Commemoratives—British Colonies—High Value Pictorials, etc. Complete Collection plus Big Illustrated Magazine all free. Send 5c for postage. Gray Stamp Company, Dept. PR, Toronto, Canada.

LOOKING for better U.S. on approval?? Write New-Way Stamp, Lawrence, Mass.

"HOW To Recognize Rare Stamps." Free Book Illustrated! Kenmore, Milford H-58, New Hampshire.

GIGANTIC ½-1-2c Approvals, over 17,000 varieties available. Dresel, Box 270-(b) Cathedral Station, New York 25, N.Y.

SOUTH American Approvals. Excellent prices. Casilla 2861, Correo Central, Buenos Aires.

ITALY—100 Different 5c with Approvals. DeRespinis, GPO, Box 771-R, New York City.

OLD scarce U. S. seconds on approval. Slightly defective, bargain prices. Hearnfield, Clintonhill Station, Newark 8, N. J.

FREE! Monaco nude set 3. This popular set offered to new approval applicants. Moumblow, Box 278M, East Northport, N. Y.

FREE Bahawalpur Jubilee set to approval applicants. Lighthouse, Box 1516 Colorado Springs, Colorado.

100 DIFFERENT 10c. 1000-$1.00. 5000 Mounted $12.50. Ransom, 1333 Pontiac, Ann Arbor, Michigan.

100 DIFFERENT France 10c. Approvals. Aronson, Dept. M, 91 Marion, Brookline 46, Massachusetts.

50 DIFFERENT U.S. 5c. Price lists included. Bookman, Maplewood 1, N. J.

10 COMPLETE sets, 25c. Free Lists. Pinkerton, Box 81-M, Bethlehem, Penna.

OUR Penny Approvals jammed with Bargains. For Better values try Putnam Stamp Company, Mahopac, New York.

FREE Packet with United States and Foreign Approvals. Hoyt, Hudson, N. H.

FREE! Beautiful mint set to those requesting approvals. "Mintco," 1267 Tutwiler, Memphis 7, Tennessee.

100 DIFFERENT U. S. 25c. Approvals. Buckeye, Box 53, Mansfield, Ohio.

UNITED States—40 different 10c; 40 different Commemoratives 25c. No approvals. Seidenberg, Appleton 944, Wisconsin.

EXCHANGE Your Duplicate Stamps. Send 100-200 different foreign and dime. Receive all different. Patterson, 5622 Broadway, Lancaster 21, New York.

BIRD Collection features Angola multicolors; bicolors; triangles. Free to approval buyers. Pleasure Stamps, 1865A—52nd, Brooklyn 4, New York.

A Collector's Club . The Fleetwood First Day Cover Club has a growing membership across the Nation. Numerous Services and a Free cover of your choice, on joining. Send for full details. Fleetwood Cover Service, Pleasantville, New York.

SEND 10c for most unusual money saving U. S bargain price list you have ever seen! David Chassy, Box 42-PM, Babylon, New York.

TEN dandy sets, 10c. Approvals. Faszold, 423a Cameron, St. Louis Co. 15, Mo.

ZOUNDS!! Exciting "Strange Countries." Savage and Exotic Lands packet—Free with approvals! Saxon, Vista, Calif.

FREE 50 different Denmark with Approvals. Lush, 9627n Martindale, Detroit 4, Michigan.

250 STAMP hinges and 8 different Brazil free with approvals. Jaydee, 218 Dickinson S.W., Grand Rapids 7, Mich.

FREE "Stamp Finder." Tells country to which any stamp belongs. 32 pages profusely illustrated. Garcelon, Calais 19, Me.

FREE Sample—Interesting informative. Illustrated! National Stamp News, Anderson, South Carolina.

½—1—2c APPROVALS. Bargains Galore! Cole, 43G Rinewalt, Buffalo 21, N. Y.

SEND 100 different stamps, 10c and stamped envelope. Receive 110 different. Y. Bardsley, GPO, Seabright, New Jersey.

U.S. stamp grabbags. Big variety 25c. Monjar, Fairmount, Cincinnati 14, Ohio.

MINT (Unused) United States approvals. Patrick Agencies, 3650B Central, Indianapolis 5, Indiana.

FREE Stamp Zoo! Rhinoceros, Snake, Giant, Pygmy, Emu; Kangaroos, Koalabear, Kookaburra and other wild animals. Free with exciting approvals. Niagara Stamp Co., Niagara-On-the-Lake 52, Can.

500 MIXED Stamps and Surprise Packet for 10c with approvals. Fahsing, Dept. PS, Atascadero, California.

65 ALL Different U.S. Stamps includes 19 Century, Commemoratives, Airmails and $5.00 Stamp. Only 10c. Approvals. Willett Co., Box 507M, Port Chester, N.Y.

50 DIFF. Finland 10c with approvals. Carroll's, E. 1817-C Sprague, Spokane, Washington.

APPROVALS ½c up from 33,000 collection. Chur. Box 245, Buffalo 12, New York.

WONDERFUL Offer—7 complete Mint Sets Manchukuo etc. only 10c with approvals. Reich (S25), 1033 Lawrence, Chicago 40.

FREE Illustrated Price List. Philatelic House. Rockville Centre, New York.

ONE Kilo Italian Large pictorials $10.00. Beverini, Caselpostale, Ge-Pegli, Italy.

OUTSTANDING Booklet! Easy way stamp collecting! Send dime today! "Stamps By Mail." 2133 Lunt, Chicago 45.

50,000 STAMP Grabags 25c each. Anderson, 630a Bingaman, Reading, Pa.

"TRIANGLES! ! !" Latest Hungary—San Marino Bicolors (8); Free to "Approval Buyers." William Deems, Ravenswood, West Virginia.

2c APPROVALS—Colorful better grade foreign for thrifty collectors. Moffate, 921 College, Rock Hill, South Carolina.

TRIANGLES! Diamonds! Eleven scarce, beautiful, bi-colors only 10c with approvals! Thrifty Company, Silver Springs, Md.

CANADA 7 Commemorative 10c, attractive approvals. Rheaume, 6591 11th Avenue, Montreal, Canada.

U.S. 797 SPA sheet only 5c to U.S. approval applicants. D. Kelly, 235 86th Street, Brooklyn 9, New York.

START your own Stamp Business. Send for Free circular. Donald Shepard, Box 1147, Chicago.

PENNY Approvals by country. M. H. Hoerning, 102 Farmington, Ark.

SPANISH Colonies, 3 animal sets 10c with approvals. Seminole Stamps, Box 1138-S, Coral Gables 34, Fla.

"GOYA Nudes" 20c (Worth 55c) with approvals. German War Issues cataloging $10.82, $2.50. Royal Stamp Company, Tamaqua 2, Penna.

MAGNIFICENT! Nineteenth Century U. S. Pius Civil and Spanish War Revenues. 20 Different 10c To Approval Applicants. AAA Stamp Company, Arcade Building, St. Louis 1, Missouri.

SHEPARD Stamp News. One year 20c. Sample Free. Box 1147, Chicago.

100 DIFFERENT Spain 25c. Penny approvals included. Reed, Box 980, Chicago 90, Illinois.

GIANT Approvals. Thousands Different at 1 and 2c. Wahl's Stamp Exchange, 7008K Farragut Ave., Chicago 31, Ill.

60 DIFF. USA and 200 Diff. Foreign 25c Approvals. Kem, 670 W. Florence, Los Angeles 44, Calif.

NEW Cambodia! Native dancers set plus 100 different stamps. 10c approval applicants. Sunset, Dept. 898, Box 47, South Gate, California.

ALBUMS, Accessories, Leading Brands, Gifts, Coupons. Harry Smolin, Box M-288, Flushing, New York.

BREAKING Collections. Super Medium advanced approvals. McWhorter, 6440B Union, Chicago 21.

U.S. And Confederate States illustrated catalogue free. Stone, 45 Bromfield, Boston 8, Massachusetts.

FREE: Mint British Colonies from Tonga, Seychelles, Brunei, Transjordan, Sarawak, Solomon Islands, Caymans, Gilbert Ellice—Free with approvals. Viking, 130-P Clinton St., Brooklyn, New York.

EXTRA Special ½c approvals and better. Emil Auer, Buffalo 10, New York.

USED foreign airmails are modern and attractive. 100 all different $1.50. Free pricelist and foreign airmail cover 6c. No approvals. Watchorn, Tabor 5, New Jersey.

29 ANTIQUES, RELICS & INDIAN GOODS

1953 HOBBY Catalog 35c.—Selling 460 Historical firearms, 20,000 Indian Relics, Collectors Cartridges, Coins, Agates.—Revolutionary, Civilwar, Indian Wars, Flintlocks, Muskets, Blunderbusses, Pistols, Revolvers, Pepperboxes, Swords, Ramrods, Powderhorns, Bulletmolds, Nipples, Percussion Caps.—Eagle Feathers, Claws, Arrowheads, Tomahawks, Gempoints, Bannerstones, Discoidals.—Stagecoach Winchesters, Kentucky Rifles, Frontiers, Gun Barrels.—Mounted Pheasants, Owls, Squirrels, Deerheads, Elk Antlers, Fish, Buffalohorns.—Bo-wood, Bio-horns, Violin Wood, Rattlesnake Skins, Marine Shells.—Agates, Minerals, Fossils, Gold Dollars.—Send 35c for 1953 profusely illustrated catalog. Heike, Wenona 41, Ill.

SPECIAL:—10 Indianheads $.78—prehistoric Arrowheads $1.48—Tomahawk $4.65—Scalper $2.88—Hammerstone $1.88—Pestle $8.88—Civilwar Sword $14.88—Bayonet $1.98—Canteen $1.95—Geode, Pyrite, Galena, Molybdenum, Chalcopyrite, Ricolite, Smithsonite, Turquoise, Marcasite, Gastropod, Crinoid, Bracipod, Fossil, each 48c. Heike, Wenona 41, Ill.

6 PERFECT ancient Arrowheads $2.00. Grooved Tomahawk $3.00. List Free. Lear's, Glenwood, Arkansas.

30 MINERALS & PRECIOUS STONES

"GENUINE" red Arizona Rubies (Garnets). Send quarter for packet. Bitner's, Box 1025, Scottsdale, Arizona.

GEMOLOGY Books! Catalog 10c. Atlantic Books, 2 Lawrence, Charlestown 29, Massachusetts.

GEMSTONES, Mineral specimens. Every variety. Lowest prices. Postcard brings free booklet. Plummer's, 4720 Point Loma Ave., San Diego 7, Calif.

GEMS, Precious and semi-precious, genuine, from world-wide sources. Deal Direct, no overhead, save money. Catalog 10c. Hill Co., 5450-K Portland Rd., Salem, Ore.

31 HOBBIES, COLLECTIONS

INVENTING can be an interesting and profitable hobby. Write for complete particulars. Institute of American Inventors, Dept. 30-E, 631-E St., N. W., Washington 6, D. C.

33 ARMY patches, collar ornaments, Campaign ribbons plus introductory surprise, only $1.00; prices 10c. Hobbyguild, Box 71, Sta. "A", Brooklyn, New York.

50 DIFFERENT army embroidered patches $1. Other bargains. Insignia Mart, 703B Broadway, N. Y. C. 3.

HOW To Make Money With Hobbies, 64 pages of information, ideas, inspiration for hobbyists, price $1.00. Siri's, Box 412-S, Far Rockaway, New York.

MILITARY Soldiers catalogue historical and ship model catalogue 25c each. Exciting, educational, informative. Corr's, 812 9th Street P.S., Washington 1, D.C.

WANTED—Cigarette, tobacco cards. Write Charles Bray, East Bangor, Penna.

SEA Shell. Priced Catalogue 1200 species. 150 pages. Only book of kind in world. $2.00. Walter Webb, 2515 2nd Avenue North, St. Petersburg 3, Florida.

UNUSED matchbook covers—100 different $1.00—36 page Catalog 25c—Charles Edelman, 1311P East 84, Cleveland 3, Ohio.

PATRIOT? Frame, collect, American Documents (facsimiles), portraits; Jap Surrender $1.00; Eisenhower Portrait $1.00; List 10c. Documents, 422 Washington Bldg., Washington 5, D. C.

BIG Packet Foreign campaign ribbons. Colored Catalogues. $1.00. Medcraft, 421 6A St. N.E., Calgary, Canada.

57 ASSORTED Collector's Items only $1. Amazing hobby. Embroidered patches, authentic armed forces insignia, ribbon bars, naval insignia. Gift free with order. Pritt Co., Dept. S-1, 14 West 27th Street, New York City.

PLASTIC kit 1915 Ford 89c; Glue 10c prepaid. Cress Hobby Shoppe, 1134 St. Charles Ave., New Orleans 13, Louisiana.

START the new year making your own leather belts, billfolds, purses, hats, dresses, blouses from durable, low-priced leathers. Leatherwork appeals to every member of the family. Tools, designs supplies available. Free Catalog. Tandy Leather, Box 397-D, Tulsa, Oklahoma.

32 PHOTO FINISHING, PHOTOCOPIES, ETC.

ROLL Developed and 4x6 or $3\frac{1}{4}$x$4\frac{1}{2}$ oversize glossy Velox prints, 8 exposure 40c, 12 exposure 60c, 16 exposure 80c. Clemet Photo Service, 1318 West Columbia Avenue, Philadelphia 22, Pa.

PHOTOGRAPHY for pleasure or profit. Learn at home. Practical basic training. Long established school. Free booklet. American School of Photography, 835 Diversey Parkway, Dept. 1741, Chicago 14.

TWO Prints each good negative, 8-exp. 45c; 12-exp. 65c; 16-exp. 85c; Reprints 4c. Mayfair Photo Service, Box 617-A, Toledo, Ohio.

COLOR Prints from color transparencies, (5 for $1.00) size $2\frac{1}{2}$"x$3\frac{1}{4}$". Valu-Color, Oakwood Station, Los Angeles, Calif.

ENLARGEMENTS! Eight 5x7's or five 8x10's $1.00. Wilart Enlargers, Box 967, Little Rock, Arkansas.

JUMBO Album Prints, 8 Exposures $.40, 12—$.50, 16—$.60. Photoshop, Box 362, Ishpeming, Michigan.

FILMS developed and printed 5c per exposure. Jumbos 10c roll extra. All 35mm fine grained. Write for mailers and prices. Tops Photo Service, Lyons, New York.

FREE Mailers, 8 contacts 30c, jumbos—40c. 12—45c. Jumbos—55c, reprints—4c. Jumbos—5c. Western Photo PS13, Box 298, San Francisco 1, Calif.

NEW—16 oversize contact prints or 8 jumbos in album, 25c with this ad. Album Studios, Dept. S, Weatherford, Oklahoma.

OIL Coloring photographs. A fascinating hobby or profitable sideline for those with artistic talent. Learn at home. Easy simplified method. Free booklet. National Photo Coloring School, 835 Diversey Parkway, Dept. 1721, Chicago 14.

33 MOTION PICTURES, SLIDES SOUND EQUIPMENT

GUARANTEED Fresh 8mm roll, magazine; 16mm roll, magazine movie film. Color, b&w. Free catalog. Eso-S, 47th Holly, Kansas City 2, Missouri.

8-16MM. Silent-sound films. Complete rental library. All latest subjects. Free catalogue. (sample film 10c). Garden Film, 317 West 50th, New York 19.

MOVIE Camera Film: 8mm roll $1.50. 16mm 100' $3.00. Free processing. Better Films, 742 New Lots, Brooklyn, N. Y.

RENT 16MM sound films 50c reel. Large selection; free catalog. U. C. Film Service, 128 Chestnut St., Roselle Park, N. J.

FREE Giant catalog of 8mm & 16mm films for home movie enthusiasts. Films for every occasion. Lee Stann, Dept. PS1, 11 Willard Ave., Mt. Vernon, New York.

EXCHANGE 16mm. sound films, also for sale. Bedner, 5300 So. Talman, Chicago.

WILD Life Films. Exciting, dramatic action in the natural habitat of animals of forest and plain. 8mm or 16mm in beautiful color or B & W. Also 2"x2" color slides. Write for free illust. literature. Wild Life Films, 5151B Strohm Avenue, No. Hollywood, Calif.

SYNCHRONOUS magnetic recorder professional quality. Magnetic Recorders Co., 7120-A Melrose Ave., Los Angeles 46, Calif.

TAPE Recorders, Tapes, Accessories. Unusual Values. Dressner, 624 East 20th Street, New York City 9.

5,000 NEW-Used 8-16mm. Silent-Sound Films. International, 2120 Strauss, Brooklyn 12, New York.

1953 ROSE Parade movies. Kodachrome. Colorful floats. Beautiful girls. 200 ft. 16 mm. $34.95. 100 ft. 8mm. $17.50. Calif. add tax. C.O.D.'s accepted. Avalon Daggett, 441 No. Orange Dr., Los Angeles 38, California.

BIGGEST Bargains At Blackhawk: Headquarters for used films—16mm. sound prints often available at $3.98 a reel; 16mm. silent, $2.98; 8mm. $1.98. Tremendous stock of used features, comedies, cartoons, sports, travels, musicals, 100' 16mm. used Panoram musicals, six for $4.99. Big savings on new 16mm.-8mm. subjects. Lowest prices on reels, cans, editors, splicers, supplies. Good used 16mm. sound projectors—Ambros, Bell & Howells, Victors—often available at $129.95. Whatever it is, Blackhawk almost always has the biggest selection at the lowest price. Get Blackhawk's big free monthly catalog. Blackhawk Films Inc., 1118 Eastin Bldg., Davenport, Iowa.

8-16-35 MOVIE Still Cameras. Projectors supplies, used, new. Government Surplus. Bargains. Film Library. Trades accepted. Bought. Catalogs. Mogull's, 112 West 48, New York.

THE world's Greatest story. "Entire Life of Christ," 8mm., 16mm., 35mm. Sound and silent. Rent or purchase. Hemenway Film, 31 W. Church St., Boston 16, Mass.

34 CAMERAS, PHOTO SUPPLIES

BASS Says: Trading cameras a national habit since 1910. Write to Bass the old "Horse Trader." A postcard will do. Simply say: "Bass, I have and I want . . . How much will you allow me?" Satisfaction guaranteed. Bass Camera Company, Dept. AG, 179 W. Madison St., Chicago 2.

RARE opportunity—35mm Leitz Valoy Enlarger. Used fine condition. $60. Empire, 58 Garth Rd., Scarsdale, New York.

HUMOROUS old time color slides for home projection. Illustrated catalog free. Universal, Box 629-S, Beverly Hills, Calif.

LATEST Craig Projecto-editor combinations, complete . . . 8mm. $48.97. 16mm. $58.97. Free catalog. 1001 bargains. Dealer's Mart. Dept. S-1. 11 Willard Ave., Mt. Vernon, New York.

ATTENTION: Make money with your camera easy interesting, partime, send Dollar. Didonna, 440 Dos Rios—12th Street, Sacramento, California.

GUARANTEED repairs at fair prices. Free estimates. Camera Repair Corporation of America, 225-C Broadway, New York 7.

BRAND 17 America's Most Versatile Camera with revolving interchangeable 4x5 $3\frac{1}{4}$x$4\frac{1}{4}$ $2\frac{1}{4}$x$3\frac{1}{4}$ Graphic and Graflex backs Wollensak lenses filmholders Kalart R.F. Write Brand Camera Company, 907 S. Victory Blvd., Burbank, Calif.

PHOTOGRAPHY for pleasure or profit, Learn at home. Practical basic training. Long established school. Free booklet. American School of Photography, 835 Diversey Parkway, Dept. 1721, Chicago 14.

GOLDE 2x2 Numanumatic projector, 300w w/blower, unused, $43.05. Free catalog. 1001 bargains. Dealer's Mart, Dept. S-1A. 11 Willard Ave., Mt. Vernon, N. Y.

WHOLESALE Photographic Supplies. Cameras, Films, Projectors, Enlargers. Write for Free Catalog. Capitol Photo Supplies, 2428 Guadalupe, Austin, Texas.

5-POPULAR Roll Film $1.00. Government Surplus Photo Bargains. New, used Cameras. Trades accepted. Bought. Catalogs. Moguil's, 112 West 48, New York.

35 MUSIC, INSTRUMENTS & SONG WRITERS

WANTED! Poems for musical settings. Write Songwriters' Service, Clifton, N. J.

POEMS Wanted to be set to music. Free examination. Send poems. McNeil, Master of Music, 510-PS, S. Alexandria, Los Angeles, California.

POEMS Wanted for musical setting. Send poems for free examination. Five Star Music Masters, 646 Beacon Bldg., Boston, Mass.

POEMS Wanted for musical setting on percentage basis. Free Broadcasts. Sooner Song Co., 22-PS North West 8th, Oklahoma City 2.

SONGPOEMS Wanted. Mail to: Tin Pan Alley Inc., 1650 Broadway, New York 19, N. Y.

SONGWRITERS! Send poems, songs. Music Service, 243 West 72nd St., PS, New York 23.

SONGWRITERS! Outstanding offer. Ray Hibbeler, C-15, 2157 N. Avers, Chicago 47.

SONGWRITERS! Hold All Song Poems! Get Inside Facts First! Nationally known Songwriter's Booklet "Songwriting Secrets" tells All. Also list of Publishers, how to contact. All for $1.00. No C.O.D.'s. Free Rhyming Dictionary with each order. Melody House, Dept. PS, Box 19007, La-Tijera Sta., Los Angeles 43, Calif.

1952 ACCORDIONS—Wholesale. Free catalog. American Accordion Center, 5329 Belmont, Chicago.

SENSATIONAL Free Booklet, "How To Write and Sell Songs." Get the facts first. Poems examined Free. Reliable Music Service, Box 430-B, Hollywood 28, Calif.

ELECTRIC Guitars, accordions, amplifiers. Wholesale. Free catalog. Carvin, Baldwin Park, Calif.

POPULAR Songs. How to write and sell them. Write for free booklet. Successful Songwriting, Gateway Songs, Box 2470, Hollywood 28, California.

YOUR Songs Recorded. Melodies composed. Recording Society, New Boston, Ohio.

36 RADIO, TELEVISION, SUPPLIES & EQUIPMENT

MAKE simple, tubeless, batteryless, distance-getting crystal radios. Crystal and illustrated instructions 25c postpaid. Allen, 427-S, Clinton, Mo.

BUILD 15 Radios—Only $1.30 Each. Experience Unnecessary. Home Radio & T.V. Course, includes Trouble-Shooting and Servicing Lessons. Radio Principles, Code Instructions, Practical Radio Building and Repairs. You build and keep Receivers, Transmitters, Amplifiers, Test Equipment, Code Oscillator. All parts, tools, instructions supplied including Radio Tester and Electric Soldering Iron. Write for full particulars and receive absolutely Free your copy of "Radio & TV Repair Guide." No obligation. Progressive Electronics Co., 497 Union Ave., Dept. PS-26, Brooklyn 11, New York.

FREE 236 Page 1953 Television-Radio-Electronic Catalog! World's largest stocks, lowest prices. Complete supplies for builders, experimenters, amateurs, servicemen. Latest television, radios, phonos, recorders, sound equipment. Thousands of parts, tubes, test instruments, books, diagrams. Top quality money saving values. Get yours now! Allied Radio Corp., 833 W. Jackson Blvd., Dept. 31-A-3, Chicago 7, Illinois.

$6.95 UNIT restores TV picture tubes. Abarone, 484 Mass. Ave., Buffalo 13, N. Y.

BUILDER'S "Pictorial Construction Plans". Free List. Alena, Box 24, Astoria 8, New York.

ENJOY 3 color television now. Seconds to attach. Send $1.50 for 16" or under, $2.00 size 17" $2.50 size 20", $3.00 for 21" screen. Zingo Products, Johnstown 5, N. Y.

RADIO Control model booklet with illustrated diagrams and list 18 builder's plans, 25c coin. Dittofax, 5208-B Onacrest, Los Angeles 43.

BUILD Television Antennas, 82 channels, six types. Antenna Instructions $1.00. LP Engineering, Box 7824, Indianapolis, Indiana.

MAKE Distance-Getting crystal radio that works. Fully illustrated booklet fifteen cents. Money back guarantee. Francis, Box 5963, Cleveland, Ohio.

SCHEMATICS—Television, radio, radar, transceivers, Test Equipment $2.00 copy C.O.D. Box 472, Port Richmond, Staten Island, New York.

24 PAGE Plans "18 Crystal Sets" (SW record 5800 miles) 25c, including "Radio-builder," catalog. Laboratories, 1131-T Valota, Redwood City, California.

37 BUSINESS OPPORTUNITIES

WANTED! Home Producers by Manufacturers in our Clearing House Service. Become a sub-contractor casting plastic products for these companies. Thousands of easy to make items required. Cash in at home, without previous experience. For details write Plastic Service, Dept. PS, East Boston 28, Mass.

BIG Money and fun growing Live Miniature Ming Trees on your window sill. Write for Free rare tree seed and plan. National Nursery Gardens, 8463 South Van Ness, Inglewood 4, Calif.

GOOD Paying Business Silvering mirrors, plating autoparts, reflectors, bicycles, bathroom fixtures, etc., by late methods. No tanks or shop required, outfit furnished. Free Booklet. Gunmetal Co., Ave. E, Decatur, Illinois.

EXTRA Money—No Selling—operate vendors. Amazing profits, details Free. Silver King, Suite 221, 622 Diversey, Chicago 14.

OPERATE profitable mail order business. Write Walter Service, 4159-B East 112th, Cleveland 5, Ohio.

MAKE money addressing envelopes. Our instructions reveal how. Glen Glenway, 5713 Euclid, Cleveland 3, Ohio.

HOW and where to obtain Capital? Free details. Star Service, Wapakoneta, Ohio.

RECAST old batteries into new. Latest achievements. Battery Laboratories, Minneapolis.

MAKE $3.00 Hour At Home—I do—making sandals. George Youngs, 1308 South First, Arcadia, California.

ELECTRO Plating equipment—New and used. Complete assemblies. All sizes for all types of plating. Baby shoe metalizing sets. Mounts, supplies, instructions. Free catalog. Hollywood Bronze Supply, Dept. R, 1624 E. First Street, Los Angeles 33, Cal.

ENVELOPES addressed accurately, reasonably. Fast Service. We have capable addressers in your city. Glenway System, 5713-X Euclid, Cleveland 3, Ohio.

IMPORT-Export! Opportunity, profitable, world-wide, mail-order business from home, without capital; or travel abroad. Established World Trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger 11, Los Angeles 24.

THRILLING Profitable Home Business. Make fast-seller chenille monkey trees, dolls, flowers. Terrific holiday demand. Information free. Velva, Bohemia 17, N.Y.

MAKE Gifts, Novelties, Jewelry, from sea shells, fish scales, plastics! Wholesale, illustrated catalog 10c. Giftcrafts, Box 4550-PP Coral Gables, Florida.

FOR an extremely profitable lifetime business, operate a Collection Agency. Quickly learned. Write Cole Associates, Syracuse 2, New York.

MAKE $6.73 Every Time You sell one—and they're amazingly easy to sell! We have new Adding Machines in original factory cartons you can sell for only $14.95 and you make 45%. They're executive model portables, precision built with automatic clearance, direct subtraction, fully guaranteed. Send for life size color photo with full details. Write today to Lightning Adding Machine Co., Inc., Dept. PS-9, 1240 West Second Street, L. A. 26, Calif.

BUY Wholesale. Thousands articles. Supply directory 10c. Idealex, Park Ridge, Illinois

$25 WEEKLY Working two hours daily. No canvassing. No manufacturing. Lycke, Box 2471-B, Cleveland 12, Ohio.

LEARN Sewing Machine Repair. Electrify, rent, trade, sell. Make up to $125 week spare time. New machines, motors, etc. wholesale. Details free. Taylor Service, Hamilton PS-1, Ohio.

MOLD Making Liquid Rubber; Sample pint with instructions, $2.00 postpaid; Plastercraft Supply Company, 3051 St. Clair Avenue, Cleveland 14, Ohio.

ADVERTISING book matches—Cash in on big demand—sell Union Label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. PX-153, 7530 Greenwood, Chicago.

NATURAL Molding Latex. Extra thick. Free sample. W. Wooley, 115B Donald, Peoria, Illinois.

FREE Valuable Catalog. Over 2000 select Businesses Farms, Ranches & Income Properties for sale thruout West. Contains prices, addresses, etc. Write us What and Where you want to buy—and we'll advise sellers of your requirements. No salesmen—No Commission to pay. Write for Free Catalog No. 77, National Business & Property Exchange, 4101 West 3rd St., Los Angeles 5, California.

CONVERT hand mowers to power mowers. Do it now, this winter. Sell the Handy-Dandy conversion kits. Easily installed on 16 to 20" mower. Use any small gasoline or electric motor. Quick delivery. Kits purchased with or without engines. Also new garden cultivator. Cultivates 3" deep. Attachments available: weed cutter, lawn mower, snow plow, and rotary snow brush. Discount to dealers. LeClaire Manufacturing Company, LeClaire, Dept. PS, Iowa.

UP To $200 Weekly! Work home, start spare time, small capital. Free booklet "301 Unique Successful Businesses", tells how. Deumant Publications, 79-S Deaumant, Kenmore 23, New York.

EARN Extra Money weekly mailing circulars for advertisers. Complete instructions—25c. Siwaslian, 4317-B Gleane Street, Elmhurst 73, New York.

NEWEST Spare, Full-Time Business. $5 to $10 hour possible. Paint with Suede—the finish with touch And eye-appeal. Beautify auto dashboards, signs, radios, toys, figurines, lamps—100, 1 others. Complete. Step-By-Step Instructions sent for no-risk examination. Free details. Coast, 1004-AG So. Los Angeles St., Los Angeles 15.

BOOKKEEPERS — Operate profitable "No-Ledger" bookkeeping service. Write Frye, Box 432, Chester, South Carolina.

START A Buying Service, buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers, 627-T Linden, Buffalo, N. Y.

BOOKKEEPERS, increase earnings operating sensational bookkeeping service. C.P.A. system. Kern, 4942-B Vineland, North Hollywood, Calif.

SELL books by mail! Wholesale catalog, 25c. Monarch, Auburn, New York.

ANNOUNCING home study course in commercial baking. Practical basic training. Good field for those with aptitude. Free booklet. Opportunities in the Baking Industry", National Baking School, 835 Diversey Parkway, Dept. 1721, Chicago 14.

METALIZE, permanize, ceramize, porcelainize, baby shoes, dolls, pottery, hundreds of items. No firing, no baking. Tremendous profits without costly equipment! Send 25c for complete business plan and illustrated instruction book. Professional Art Products, Dept. P.S.-25, 845 S. Wabash, Chicago 5, Ill.

LIQUID Marble—Colorful, glossy! Molded, brushed, sprayed! Cast Novelties, Statuary, Colored Tiles, Flexible Molds, Composition Floors. Particulars free. Marbleizing Service, Edwardsville, Illinois.

MAKE Money At Home as renewal headquarters for all magazines. Liberal commissions. No experience—no capital needed. Supplies furnished. Write for Free Catalog. McGregor Magazine Agency, Dept. 510B, Mount Morris, Illinois.

A Big-Paying Business For a Man in His 50's. One of our men makes $11,000 in a year . . . other top men in their 50's earn up to $5,000 to $8,000 right from the start. We pay earnings in advance. Require no investment. Write confidential letter to Vice President, Dept. PS, Box 676, Dayton 1, Ohio.

NEW $$$$$ Fabulous Home-Business "Jewelize" Finish. Free Sample. Free $$$$$ Plan. Pearl-Art, 7216-B Bear, Bell, Cal.

START Venetian Blind Laundry. Profitable lifetime business. New Machine. Free Booklet. F.D. Co., 442 N. Seneca, Wichita 12, Kansas.

GROW plants, flowers. Details Free. Shiffer, Box 129, Millersburg, Penna.

$25-$40 DAILY. Moneymaking Sawfiler's Tools. Zapart, 586-S Manhattan Avenue, Brooklyn 22, New York.

25%-50% COMMISSIONS taking magazine subscriptions. Details. Courier, 40-69H 97th S reet, Corona 68, New York.

YOU For President Of Your Own Credit-Collection Agency. Many who answered our ads now have their names on office doors. Franklin Credit, Roanoke 7, Va.

TO $35.00 Weekly. Spare Time. Home Operated. Mailorder Business. Successful "Beginner's" Plan. Everything supplied. Lynn, 10420-C National, Los Angeles 34, California.

EARN $15,000-$30,000 annually. Franchise protected. Guaranteed minimum $12,500 or money back. Live at home. No merchandise to buy. Self-employed. One of most exclusive and noncompetitive businesses in United States and Canada. Send 50c for explanatory book. Money refunded when book returned. Harrell & Company, Box A-2, Louisville, Illinois.

LIQUID Rubber, make flexible molds. Free Sample. Chaney, 1130 E. 16th St., Jacksonville 6, Fla.

BOOKKEEPERS. Keep books, small firms spare time. Manual latest technique by C. P. A. $3.00. Modern Business, Box 406, Youngstown 1, Ohio.

POPCORN and Potato Chip equipment. Long Eakins Company, 5363 High, Springfield 99, Ohio.

YOU Can Earn Money Easily at home securing subscriptions by mailing our literature. Rush stamped envelope for details. Donneberg's Sales, Box 5965, Cleveland 1, Ohio.

MAKE Rubber Stamps, repair dolls, learn invisible reweaving. Molding Latex. New Low Prices. Catalogue of "40 Ideas". Universal, Box 1076-B, Peoria, Illinois.

SPECIALIZED Magazines covering your field of interest help You to greater success. Get latest copies through our easy-to-get-acquainted Service. Hundreds of business, trade, professional, educational, sport, hobby, dairying, dental, diesel, dramatic, drug, electrical, engineering, farm implement, livestock and others covering All interests. Send for List today. It's Free. Commercial Engraving Publishing Company, 34S North Ritter, Indianapolis 19, Indiana.

MAKE Fast-Selling Repeat Order Products At Home—no machinery—everything furnished. Write: Shepard, 455-C West 34th, New York 1, New York.

MAKE Money at home—mailing literature—running Ads. Pleasant and profitable. Write Miller, 1772-R Carlyon Road, East Cleveland 12, Ohio.

DO Easy addressing-mailing work at home. Get cash orders every day. Details free. Maxted -Book Agency, Western Springs, 12PS, Illinois.

VENDING Machines—No selling. Operate a route of coin machines and earn amazing profits. 32-page Catalog Free! Parkway Machine Corporation, Dept. 73, 715 Ensor St., Baltimore 2, Maryland.

MAKE Money spare or full time, casting Metal Toys and Novelties. Big wholesale and chain store demand for Autos, Soldiers, Ashtrays, Banks, etc. keeps manufacturers busy. Production moulds furnished for up to 100 and more castings per hour. No experience or special place necessary. Write for information and illustrations of patterns needed. Metal Cast Products Co., Dept. E, 1696 Boston Road, New York 60, N. Y.

START Business without Capital! Reliance, 15-B Park Row, New York 38, N. Y.

LEARN Silk Screen Printing. Inexpensive Course teaches everything. Typecrafters, 510-E West Susquehanna, Philadelphia 22, Pa.

MAKE flexible molds! Cast plaques, bookends, figurines! Free sample! H. Tooker, 630-A Chestnut, Hamilton, Ohio.

MAKE Perfumes At Home. Write, "Carey Laboratories," 1914 Chouteau PS-1, St. Louis 3, Missouri.

137 PLANS for starting home business. Details: Elite Co., 220-A Grand St., New York 13.

CO-Partners Wanted—Share in Big Time profits publishing—selling New book with terrific possibilities. Foreman, 351-A Fairmount, Jamestown, New York.

"MAKE Perfume" Catalogue Free. "International," 6347 Parnell—PS1, Chicago 21, Ill.

BOOKKEEPERS—Earn up to $520 month serving small firms part or full time. Proved Plans; Simplified System. Particulars free. Tax Saver System, Dept. PS, Fort Worth 2, Texas.

GET Dollar Orders In Your Mail—keep 90c. Everything supplied. Genmerco, Box 142-C, Dorchester 24, Mass.

QUICK Money! Repairing Car Batteries! At home! Amazing profits! "The Batteryman's Secrets." Complete instructions $5.00. 5 day moneyback guarantee! Batteryman, Grand Junction 2, Colorado.

MAKE Money At Home Mailing Cards-Circulars. We supply every need and start you with almost no investment. Paton's, Box 55-W, New York 23, New York.

START home mailorder business—Details—Gedgard, Box 798-Y, New York 1, New York.

500% PROFIT!! Make beautiful fast selling costume jewelry. From natural marine and botanical life; Transformed into exquisite "Ceramic's" gems. Orange blossoms, seahorse, starfish, etc. Free instructions! Jewelry by Julium, Box 460, Ft. Lauderdale, Florida.

5 MAIL Order Plans $1.00—Prices, Commissions, Sources. Arkard, 5434P Glenwood, Chicago 40.

HOME Mail Business! We supply exclusive product - Advertising - Everything. Experience unnecessary. Start low as $150. Terrific Potentialities. Write: NMD, Agency, Box 88-C, Dorchester 22, Mass.

BUILD good home $150.00 room. Make durable, attractive building plastic for floors, walls, stucco, built-ins. Fire, water, termite resistant. Bays Laboratory, Oklahoma City 9.

SENSATIONAL Mail Business Opportunity selling auto owners. Everything furnished—orders filled. Needed items. Eastern, Box 142-S, Dorchester 24, Mass.

FLEXIBLE Rubber moulds for plaster and Marblite figurines. Sample and large illustrated catalog 25c, refunded on first order. K-C Novelties, Dept. J, Easthampton, Mass.

HOME Business opportunity mailing literature to new mothers. Everything furnished. Big Earnings. Orders Filled. Delray, Box 3852S, Columbus 13, Ohio.

GET hundreds money making new business ideas. Amazing! Details Free. 5538-B Lexington, Mail Service, Chicago 44.

EYEGLASSES bring tremendous profits!! Customer brings orders from doctor. Wholesaler does technical work for you. Be an optician. Details free. Dept. 1A, Associated Enterprise, 357 Springfield Street, Chicopee, Massachusetts.

RECEIVE Latest Money Making Opportunities, samples, magazines, 3 months 25c. Products, 526 S. Western, Chicago 12, Illinois.

SELL by mail; free details; instructive booklet 25c. Manhattan House, Box 51-L, St. Albans 12, New York.

ADDRESS Envelopes, Postals, at home—longhand, typewriter. Stamp appreciated. G. Torrey, Melrose 76, Mass.

COLORGLAZED Concrete Pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries, Grand Rapids, "Minnesota."

MEN-Women—"Everybody Likes Candy." Learn to make professionally at home. Tools and supplies. (Our 42nd year.) Ragsdale Candies, East Orange, N. J.

BUY it wholesale. Manufacturers, Distributors. Over 850,000 items. Literature free. Olsen, 1231-B East Third St., Duluth 5, Minnesota.

EARN Money With Typewriter—Sewing Machine! Spare Time! Details free. Edwards, 3915-PS 12th, Des Moines 13, Iowa.

MAIL order business, selling printed stationery, cards, labels. We fill orders. Free Samples, Plans. Sutton Printing, Box 853-F, Waycross, Georgia.

OWN, Operate, Route—"Wishing Wells." Place these New $7.50 Skill Games on counters in Cafes, Luncheonettes, Clubs, etc.—collect coins weekly. "Legalsheres", Box 929, Long Beach 1, California.

OVER $10.00 An Hour Reported. No competition. Nothing to manufacture. Operate at home. Particulars free! Torrey, Desk 9, Melrose 76, Mass.

$100 WEEKLY in your spare time with sensational electronic device. Springfield Enterprises, Box 54-J, Springfield Gardens 13, New York.

$250 WEEK reported! Free book "505 Odd, Successful Businesses." Work home! Expect something Odd! Pacific-36C, Oceanside, California.

"PROFITABLE Mail Selling". Twelve Tested Plans. Write: Edwards, Box 1067-S, Allen Park, Michigan.

NEWSPAPERS. Turn them into cash. Eighteen methods. Instructions 50c. Charles Company, 12-EAN, Norwood, O.

FULL or sparetime brings 40% profit. Details Free on request. No obligation. P.R.G. Products, 1533 Toul Avenue, Toledo 5, Ohio.

PROFITABLE Home business, electroplating novelties, giftwares, autoparts, mirrors. Easy inexpensive home processes. Free booklet Tyco Metals, Box 13231-CM, Houston 19, Texas.

GO into business. My plan tells how. Price $2.00. Absolute satisfaction or prompt refund. Don't miss this! Earl Whitaker, Box 397, Seminole, Texas.

MONEY in new greaseless doughnuts. Start in kitchen. No smoke. Sell stores. Free recipes. S. Ray Co., 3605 South 15 Ave., Minneapolis 7, Minn.

MAIL order business. Catalogs Merchandise supplies furnished $1.00 brings money-back plans, sample catalog. Reagan, Box 731, Binghamton 2, New York.

LEARN metalizing baby shoes, jewelry, gifts, Bronze, gold, silver. Complete success plan free. Kiktavi Building, 7217-PS South Broadway, Los Angeles 3.

FIX typewriters. Free booklet describes our modern, inexpensive home-study course. Factory methods taught. Write Typewriter, Building 4, Tarentum, Penna.

BITS of Plywood; Jigsaw. Exceptional income: Literature Free. Woodarts, PS-153, Bridgewater, Massachusetts.

38 MONEYMAKING OPPORTUNITIES

21 POPCORN, Candy Apple Formulas, proven money-makers. Send $1 today for formulas, catalog of money-making ideas. Concession Supply, 3916 Secor, Toledo 6.

BE Appointed State Notary Public Now! Details: Stationers, Helotes, Texas.

DETECTIVES Earn Big Money. Experience unnecessary. Detective Particulars free. Wagoner, P-125 West 86th, N. Y. 24.

SCHOOL Seniors—Earn sensational profits selling classmates America's Most Beautiful Graduation Name Cards. Largest selection. Outsells all others. Free sample kit. Printcraft, Dept. P, 1509 Maple Street, Scranton 5, Pa.

$10,800 PROFITS! Your own Mailorder Business! No Capital Risk! "Success Plan" (worth $2) Free! Write today! Treasury, 149 Storer, New Rochelle PS-7, New York.

BE Your Own Boss! Free booklet "301 Unique, Successful Businesses" tells how. Start spare time, small capital, work home. Deumant Publications, 83-S Deumant, Kenmore 23, New York.

SELL Titania gems; $9.75 carat wholesale. More brilliant than Diamonds. Free catalogue. Diamonite, 1404-S Mitchell, Oakland 1, Calif.

START A Buying Service, buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers, 631-T Linden, Buffalo, N. Y.

MANUFACTURE Rhinestone and Pearl Jewelry at home. Latest creations, tremendous profits, no skill needed. Postcard brings illustrated catalog of settings, stones, etc. A. V. Cutt Co., Inc., 210-H Fifth Ave., New York 10, New York.

EXTRA Income! Sell Mexican Curios! No stock investment! Drop shipment deal! Details 10c. Filmer, 910-P Marion, Pharr, Texas.

EARN tremendous profits. Work at home. Details free. Specialty Products, Box 345, Wilkes-Barre, Pa.

$25.00 A Day Profit Plan. Sound, sane and Foolproof. Complete plans and working samples 50c. Money back if you disagree. Mann-Sales, PS, 17 William, Hillsdale, New Jersey.

LEARN Watch-Clock Repairing at Home. While learning we fix your watches—clocks—Special Bonus Offer—Inquire Modern Technical Supply, 55-PS West 42nd Street, New York 36.

SPARETIME Profits Taking Subscriptions. All Magazines. Wholesale Catalog Free. Cassell Agency, Westfield 1, N. J.

SPARE Time? That's cash! Latest nationwide "extra income" opportunities—25c. Ray Cunningham, SA-1128 Holly Ave., Ocala, Florida.

MEN-Women! Make good money for spare time work in your home. Write enclosing addressed envelope to Martin's Service Dept. 3 Preston, Virginia.

EARN Money Evenings, copying and duplicating comic cartoons for advertisers. Adservice, Argyle 2, Wisconsin.

BUY Thousands Articles Wholesale Best, lowest-priced book tells How and Where. $1.00 postpaid. Guaranteed. United, Box 87-A, Detroit 2.

MAILORDER Business, Profitable, successful free advertising method. Experience unnecessary. Write H. G. Seidel, 7070 Hollywood Blvd., Hollywood 28, Calif.

MAKE to $4.50 hour doing common pen lettering. National Artists, 801 North Marsalis, C-5, Dallas 3, Texas.

WANTED: Typewriter owners. Make handsome profits. Write today. Groves Company, 682 Hastings 3, Nebraska.

MAN Or Woman With Spare Time to try our food and household products, without cost, at home and supply neighbors. Make good money. Big box of full-size products free. Blair, Dept. 55LA2, Lynchburg, Virginia.

BECOME a Tax Expert. Information 25 cents. Murphy, Box 2665-S, Lakewood, Ohio.

MAKE Money addressing Envelopes! Our information reveals how. Only 30c. Business, Dept. 45-A, P. O. Box 2224, St. Louis, Mo.

EARN $15.00 weekends! No selling guaranteed! Instructions 50c. Lago, 476 Lombard, San Francisco, California.

SELL Books, Merchandise, By Mail. Everything furnished! Free details. Paragon, Box 5-A, Providence 8, R. I.

FREE Book "505 Odd successful Businesses." Work Home! Expect something Odd! Pacific-35C, Oceanside, Calif.

$$$ IN Personalized Baby Record Books. Sell By Mail Use Same Literature We Do. No-Co-Ro, Oakland 6-P, Calif.

"NEWSPAPER Clipping Bureau!" Instructions 25c. Shroeder, 803 Wisconsin, Peoria 4, Illinois.

DO Easy addressing-mailing work from your home. Get cash orders, keep every cent. Write Paragon, Box PS-2194, Houston, Texas.

JOIN "Money Getters Guild." Receive 1,000 or more different money-making propositions without answering ads. Time wasting, postage spending. Year's membership now only 25c. Satisfaction Guaranteed or Money Back. Costar Enterprises, G.P.O. Box 972-S, New York 1, New York.

WE Pay Cash For Boxtops, Labels, Wrappers. Etc!! Particulars 3c stamp. Boxtops, 1211-PS Bryden, Columbus 5, O.

FREE! Your Own Mailorder Business! No investment! Terrific profits! Everything furnished free. Write today VimVite, 2910PS Beverly Boulevard, Los Angeles 4, California.

PROFITABLE mailorder, homeworking businesses. Free details. Specialty, Far Hills, Box 544-C, Dayton 9, Ohio.

$35 WEEKLY addressing envelopes. Instructions $1, refundable. Adservice, Spring Valley 36, New York.

MOTORIZE Sewing Machines—Free details. Selcraft, Box 394, Spring Valley, New York.

PROFITABLE Hobby—Clipping Magazines! Information 3c. Croom, 403 Colley, Norfolk, Virginia.

SPARE-Time Investigators! Eight big money-makers. Everything complete. $5. Jasper, PS-1, Box 17, Monroe, Louisiana.

39 FORMULAS, PLANS, ETC.

FORMULAS—All kinds. Latest products. Literature free. Kemico, Park Ridge 15, Ill.

SECOND Printing. Improved version, spectacular chemical fireworks experiments manual. Complete setups, formulas, instructions, still $1.00 postpaid. Chemi-Technix Laboratories, 568L Riley, Buffalo 8, New York.

ANY Formula $3.00. Chemical Instruction Sheet—catalog 10c. J. Belfort, 216 W. Jackson, Chicago 6.

AMAZING Books! 10,000 Formulas, Trade Secrets, $3.98. Chemical Formulary-authoritative, 9 volumes, $7.50 volume, $63.00 complete! Chemical Engineers Handbook—World's standard! $17.00. Literature free. Paullin, 109SA, Loudonville, Ohio.

10,000 FORMULAS, Trade Secrets, 867 pages, $3.50. Wilson, 506 Lyon, Grand Rapids, Michigan.

LABORATORY tested formulas. Lists free. Pont, Box 635-PS, Terre Haute, Ind.

FOR the best in modern manufacturing formulas, get my literature! Established 1897. Liscombe Miller, Tampa, Florida.

40 PLASTICS

LUCITE, Plexiglas. Any size sheets masked Square foot (12 x 12) cost 1/16" $1.20; 1/8" $1.40; 3/16" $1.75; 1/4" $2.08. Include 10% postage. Almac Plastics, 230 Fifth Avenue, New York 1, New York.

MAKE Plastics. Simple instructions, formulas, $1.00. Materials readily available. Lab. Box 232, A. St., Cashmere, Wash.

PLASTIC Sheets, Rods, Tubes, etc. Free List. Plastic Supply Co., 2901 N. Grand Blvd., St. Louis 7, Mo.

LEARN Plastics at home. Small cost—Spare time. Dime brings sample plastic, three experiments, full details. Plastic Projects, Box 5151, Detroit 35, Mich.

"WORKING With Plexiglas" 70 page Illustrated Plastic Manual. Material Catalog $1.00 Postpaid. Plastic's, Box 1812 Salt Lake City 10, Utah.

NEW Liquid casting plastic. Clear, colors. Embed flowers, insects, coins. Saw, drill, carve. Free Folder shows fine things you can make at home; sell at big profit. Write today. Castolite, Dept. A-102, Woodstock, Illinois.

PLASTICS, Lucite, Plexiglas, Acetates, complete supplies. Retail-Wholesale prices. Catalog 10c. Airmailed 35c. Gem-O'-Lite, Box 6861Q, North Hollywood, California.

41 CHEMICALS & APPARATUS

LABORATORY Apparatus, Chemicals, Microscopes. Complete Chemistry Sets, Minerals, Uranium Ore. 10c brings catalog. Porter Chemical Company, Hagerstown 2, Maryland.

NEW Idea Chemical and Apparatus Outfits for Home Experimenting Photo-Scales, Microscopes, Chemicals, Biological and Laboratory, Supplies in Small Quantities. Catalog 25c. Established 1931. John H. Winn, 124-B West 23rd Street, New York, N. Y.

LUMINOUS Paints will glow in dark. Six colors. Fairmount Chemical Co., 136 Liberty St., New York City 6.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology, 10c. Tracey Laboratories, Evanston, Illinois.

EXPLOSIVES—50c brings instructions for making nitroglycerine-guncotton-blasting caps and many others. Fortland Chemical Co., 1729 N. Decatur Rd., Atlanta, Ga.

SECOND Printing. Improved version, spectacular chemical fireworks experiments manual. Complete setups, formulas instructions, still $1.00 postpaid. Chemi-Technix Laboratories, 568L Riley, Buffalo 8, New York.

CHEMICAL Supply Catalog, 20c, refundable. Laboratory Sales, Box 161-G, Brighton, Mass.

CHEMICALS and apparatus for industrial, analytical, and private laboratories. Catalog 20c. Dept. M-26, Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N. Y.

AMAZING New Book of Science, Experiments, Formulas and catalogue of Laboratory Supplies, Only 25c; National Scientific Co., Dept. 15, 2204 W. North Ave., Chicago 47, Illinois.

SPECTROSCOPE for quick chemical analysis $3.00. Cutting Sons, Los Altos, Calif.

SPECIAL Chemical Equipment. Flasks, etc., 12 pieces—$3.00. Elliott Glass, Box 32, Bronxville, New York.

42 HELP WANTED

CONSTRUCTION Job List, Published Monthly. $1.00. Dempster's Construction Scout News, Dept. 268-DW, Bridgeport, Ill.

FOREIGN & Latin American Employment 1953 "Foreign Service Directory" gives Up-To-Minute Facts on Military & Civilian Construction, Government Jobs, Major Oil Listings, Aviation, Transportation, Steamship Lines, Mining, Importers, Exporters, How-When-Where to apply, application forms, Hot List Firms Hiring. $1.00 postpaid. Global Reports, Box 883-S, Hollywood 28, Calif.

FOREIGN Employment Construction men, building trades, helpers, office men, others, interested in Foreign Projects. High wages, quarters, transportation. Send $1 for Foreign Construction Compendium and Application Forms, Foreign Service Bureau, Dept. PS-1, Metuchen, New Jersey. (Not an employment Agency—no fees.)

$1,000,000 FOREIGN & Domestic Construction Projects published Monthly, gives Contractor & Locale, How-When-Where to apply with application form. Global Reports, Box 883-PX, Hollywood 28, Calif.

ALASKA!! Last American Frontier. $1.00 brings 1953 Business Directory & Government Map, Military & Civilian Construction; Homestead & Highway facts; Mining, Aviation, Fur Farming, Grazing, Timber, Travel directions. List of firms hiring. How to apply. Alaska Opportunist, Box 883-S, Hollywood 28, Calif.

OVER $1100 a month are wages of clerks, timekeepers and laborers on some construction jobs. For complete foreign job listings send $1.00. Construction Workers Service, 1111 Commerce Bldg., St. Paul, Minnesota.

FOREIGN Jobs. Contracts underway and soon starting in Africa, South America, Canada, England, Europe, South Pacific, Middle East, Mexico and Alaska. Send $1.00 for foreign job news, information, application forms, etc. DCS Foreign Job News, Dept. 268-DX, Bridgeport, Ill.

HONOLULU Help Wanted columns airmailed $1.00. Pomeroy's, #3 Campbell Block, Honolulu, Hawaii.

NEW Plastic Mending Tape. Just press on! Repairs clothing instantly. Lightning seller. Samples sent on trial. Kristee 477, Akron, Ohio.

CANADA—Boom Country. Wanted—Carpenters, Welders, Heavy Duty Mechanics, Miners, Plumbers, Equipment Operators, Steelworkers.—Oil Contractors drilling. Send $1.00 for "Construction & Oil Workers Monthly Bulletin." National Surveys, Box 402, Vancouver, B.C., Canada.

NEW York employment, huge job lists, business opportunities, housing information. Airmailed $1.00. General Mdse. Co., 391 Hoboken Ave., Jersey City 6, N. J.

NORTH Atlantic airbase job hiring hundreds monthly. Laborers earn $1100 per month, skilled $1450, superintendents to $2250. Folio $1. Jobservice, Box 1565, Billings, Montana.

OVERSEAS Jobs. Big pay, transportation, expenses. Clerical, professional, mechanical workers. Most all trades. Latest listings, airline, construction, manufacturing, oil, steamship companies, government agencies, many other opportunities. Up to date information on securing employment, contracts, income tax, applications forms. $1.00. Overseas Jobs, Box 335-BS, Baton Rouge, La.

43 AGENTS WANTED

NEW Jobs open in selling! Send name address for five free issues of Opportunity Magazine's money-making guide, listing hundreds of companies who'll pay you well, full or part-time. No experience needed. Opportunity, 28 E. Jackson, Dept. 18, Chicago 4, Illinois.

START Your Own Business on credit. Your own boss. 1586 of our Dealers sold $5,000 to $27,500 in 1951. We supply stocks, equipment on credit, 200 home necessities. Sales experience unnecessary. Pleasant, profitable business backed by world-wide industry. Write Rawleighs, Dept. A-U-PSC, Freeport, Ill.

BIG profits selling ties ($2.00 values) $6.50 dozen. Free catalog. Empire Cravats, 648A Broadway, New York 12.

GOLD Lacquered and silver sign letters. Windows, doors, trucks. Standard Sizes. Penny and up. Samples. Atlas-G. 544 West 79th. Chicago 20.

AGENTS—300% profit selling genuine gold window letters; stores and offices. Free samples. Metallic Sign Letter Co., 431-F North Clark, Chicago.

FREE Book where to buy 800,000 articles from manufacturers at Wholesale Prices. Save up to 50% on Nationally Advertised Merchandise. Rush name for Free copy. Glass Pub. Co., Ellwood City 1, Penna.

BUY Wholesale—25,000 items—Catalog 25c. Matthews, 1472-A4 Broadway, New York City 36.

PRINTING — Salesbooks — Envelopes. Free Illustrated Catalog—Ersco, Dept. PS, Bronx 72, New York.

1 CENT Each in quantity. Beautiful miniature toys. Terrific profits. Sell stores, mail order, homes. Send $1.00 for 50 assorted samples. Money back guarantee. Morael Mfg. Co., Box 115-J, Rockaway Park 94, New York.

BE Your Own Boss! Free Booklet "301 Unique Successful Businesses" tells how. Start spare time, small capital, work home. Deumant Publications, 81-S Deumant, Kenmore 23, New York.

ABSOLUTELY Free—Sales Kit. Sell personal initialed buckles with belts, cap badges, tie clasps, etc. Choose from 3000 emblems. Hook-Fast, Box 1425PS, Providence, R. I.

SALESMEN, Distributors, fast selling costume jewelry direct from factory. Big picture catalog free. Pickcraft, C-19 Bank, Attleboro, Massachusetts.

MAKE Money Introducing World's cutest children's dresses. Big selection adorable styles. Low prices. Complete display free. Rush name. Harford, Dept. J-2341, Cincinnati 25, Ohio.

PHOTO-Salesmen-Agents. Sell beautiful hand colored plastic enlargements and sensational new photo compacts, rings, bracelets, lockets, etc. Collect deposit, we deliver. Profitable sideline. Send card for Free sample kit. Novel Portrait Co., 3343-A North Ave., Chicago, Ill.

MAKE $300 And Up Weekly In A Business Of Your Own. Take orders, full or part-time for the sensational, new "20 Hand-Rubdown" Roller Vibrator. Over 300 sold at Pomona Fair in 7 days. Write for complete details today. Roller Vibrator Co., Dept. PS, 6622 Sunset Blvd., Hollywood 28, California.

SELL Sunshine Exclusive Everyday Cards and make Big Money the easy friendly Sunshine way. Complete selection greeting cards, Imprinted Stationery, Gift Wraps, Novelties, Handy Home Wrapping Kit, etc. 21 DeLuxe Miniature Everyday Cards—75c. Many others. Send postcard today for your Sunshine Sample Kit on approval: Sunshine Art Studios, Dept. PS-1, Springfield 1, Mass.

NEED extra money? Show your friends Wonderful Regal line of All-Occasion Greeting Cards. Over 100 beautiful assortments to choose from. Also Exclusive Stationery unobtainable elsewhere. No experience necessary. Your profit up to 100% plus bonus. Write for free samples. Sales kit on approval. Regal Greeting Card Co., Dept. 34, Ferndale, Michigan.

BOYS or Girls, Men or Women: Earn large cash commissions, or valuable merchandise selling Garden Spot Seeds. Send No Money, just name and address, receive 50 packets of seed to sell at 10c packet, and Free 34 page Catalog. Lancaster County Seed Company, Dept. 413, Paradise, Penna.

MAKE $50 Or More Fast with sensational greeting card line. Big value All-Occasion Box Assortments, Birthday, Easter, Secret Pal, Religious Cards, Wrappings, Stationery, Unusual Gifts and Gadgets. Amazing profits. Bonus. Experience unnecessary. Write now without risk for samples on approval and selling plans. Hedenkamp, 361 Broadway, Dept. PS-22, New York.

RUN Your Own Repeat-Order Shoe Business! 2 sales a day brings up to $63 or more a week. Extra with fast-selling Consolidated Shoes! No experience or investment needed. Fit customers stores are unable to take care of. Special kinds of shoes for different occupations. Send postcard now for Free Selling Outfit! Consolidated Shoe System, Dept. CC20, Chippewa Falls, Wisc.

BE A Money Maker . . . Use your home as magazine headquarters. Liberal commissions. No experience—No capital needed. Everything furnished. Write for Free Catalog. McGregor Magazine Agency, Dept. 510A, Mount Morris, Illinois.

EASY Money spare time! Sell new 21-card $1 Assortment—big line Everyday Greetings, Stationery, Gifts. Profits to 100%; cash bonus. 4 assortments on approval, other samples Free. Cardinal, 1400 State, Dept. 80-A, Cincinnati 14.

EASY money! Sell new kind nylons. Guaranteed 3 months. Perfect fit, like made-to-order, for every leg-shape. Demonstration Kit with actual stockings Free. American Mills, Dept. 409, Indianapolis.

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan", American Buyers, 629-T Linden, Buffalo, New York.

VITAMINS! Big Easy profits. Sensational scientific discovery! Each tablet contains 35 ingredients. Sample: $3 thirty day supply $1.50. Send for Free Sales Plan. VimVite, 2910PS Beverly, Los Angeles 4, California.

NEW easy way to make money! Show friends new ideas in All Occasion greeting cards, gift wrappings, home and gift items. Big profits. Experience unnecessary. Request Feature Samples on approval and free samples, exclusive Name Imprinted Stationery, Gold Imprinted items. New England Art Publishers, North-Abington 801-C, Mass.

JUST Out! New Thrilling sensation in Everyday Cards. Rich foils, satins, velours sell on sight. 21 for $1. Make up to 100% profit. 50 Assortments, Imprint Stationery and Book Matches, Gift Items. Three $1 assortments on approval. Imprints Free! Joy Greetings, 507 N. Cardinal, Dept. 61-E, St. Louis, Mo.

SELL Miracle Orlon Embroidered Work Uniforms: Looks, feels, tailors like wool; wears 3 times longer. Outwears cotton 5 to 1. Acid-proof, grease-resistant. Washes perfectly pressed. Amazing profits. Outfit Free. Topps, Dept. 541, Rochester, Indiana.

ABSOLUTELY Free, yours for the asking. Send postcard today requesting free sales kit showing complete new line, belt buckles with your name or personal initials, cap badges, 3000 different emblems also uniforms, caps, shirts, ties, wallets, etc. Write Hook-Fast Company, Box 480PS, Roanoke, Virginia.

AT Last! Something New and Sensational in Everyday Cards, 21 for $1. Make Extra Money Fast! Show Satin, Velour, Metallic Cards. Get orders easy. Big line $1 Assortments, Scented Stationery, Personal Matches, Kiddie Books, Imprints Free. Three $1 boxes On Approval. Puro Co., 2801 Locust, Dept. 341-A, St. Louis 3, Mo.

CALIFORNIA sweet smelling beads, sensational sellers. Particulars free. Mission, 2328P West Pico, Los Angeles 6, Calif.

$200 WEEKLY. New invention. Amazing 4-second Presto Emergency tire chains, fit all modern auto wheels. National advertising building big demand. 3 sales daily to oil stations, dealers, etc., make $200 or more weekly. Territory going fast. Write Presto Chain Co., P-16, Des Moines 2, Iowa.

LADIES! Need clothes and money? Easy to take dress orders. Big commissions in advance. Beautiful Style Presentation Absolutely Free! Send no money. Melville Co., Dept. 7898, Cincinnati 25, Ohio.

ANYONE Can Sell Hoover DuPont Nylon Uniforms for beauty shops, waitresses, doctors, nurses, others. In white and colors. Exclusive styles. Top quality. Low priced. Exceptional income. Real future. Equipment free. Write fully. Hoover, Dept. H-101, New York 11, New York.

"FOG-Stop" Windshield Cloth. Instantly removes blurry Mist, Frost, Sleet, Snow. Stops windshield fogging. Samples sent on trial. Kristee 155, Akron, Ohio.

$12,000 EARNINGS or more each year. Sell for a company successfully manufacturing a molybdenum disulfide grease and other top quality "Specialized lubricants." Call on owners and users of heavy duty equipment in industry and in the field. An advance on earnings with no collection or delivery worries. Write experience and qualifications to E. J. Baker, Sales Dept., Box 676, Dayton, Ohio.

MEXICAN Feather Pictures. Sell on sight; 200% profit! Free details. Sample 20c stamps. (No Coins). Sylvias, Apartado 9036, Mexico City.

MAKE Money with fast-selling Bostonian Shirts, Blouses too. Spare time, full time. Sales Kit Free. Bostonian, 89 Bickford, Dept. U-11, Boston 30, Mass.

COUNTY Agency. Power mowers—$19.95 up. '53 models. Prepaid. Rotacut-RM, Excelsior Springs, Mo.

STRANGE "Dry" Window Cleaner. Sells like wild. Replaces messy rags, liquids. Simply glide over glass. Samples sent on trial. Kristee 156, Akron, Ohio.

BUY Wholesale from Manufacturers, Distributors. Save Profit. Free Literature. United Buyers Service, 3400 Selma, Knoxville, Tennessee.

SCHOOL Seniors! Postal brings you our Kwick-Sell Cardalog of popular graduation name cards. Biggest profits! Only firm giving free Golden Memory Book and Souvenir Chest. Don't miss out. Write immediately for free kit. Craftcards, Box 235M, Pittsburgh 30, Penna.

TERRIFIC Bargains—Profits! Suits $1.75, Pants 35c, Dresses 20c, Shoes 20c. Operate from store, home, car. Free catalog. Superior, 1250-B Jefferson, Chicago 7.

EXTRA Money Every Week. I'll send you full-size Blair household products. Show them to friends and neighbors. You can make Big Extra Profits. Write Blair, Dept. 55LA1, Lynchburg, Virginia.

BONUS Suit Plus Big Profits! Sell made-to-measure men's clothes. Fit satisfaction guaranteed. Big values sell fast. Profits to $11.50 per suit. Sample Outfit Free! O. K. Tailoring, 325 S. Market, Dept. 168, Chicago, Illinois.

POSITIVELY Make $50.00 a day and up selling brand new item going to every type of Food and Beverage Store, Factories, Laboratories, Hospitals, etc. Samples furnished. Utility Durawear, 53 West Jackson Blvd., Dept. PS-1, Chicago 4, Ill.

MAN to earn $500 month up. National company. Exclusive territory. Full or part time. Prospects everywhere. $11 sale earns you $7.00. Write Superior Products, Inc., Department 117, 3410 Main Street, Kansas City, Missouri.

SELL Dresses From New York. Fifth Avenue New York firm desires women to sell dresses, suits, lingerie. Seen "Vogue," "Mademoiselle." Good commissions. Modern Manner, 260PC Fifth Avenue, New York.

EXTRA Money showing home decal decorations. Exciting beauty, color, new personality for every room. Free Samples plus two complete assortments on approval. Write Decal-Art, 344 Lorel Ave., Dept. A-107, Chicago 44.

OPERATE "Escalator" Mailorder system, selling our products or any products. Fastest, most revolutionary mailorder system known. Write: Selbyco, Decatur 164, Ill.

FAST sellers. Big demand. Catalog. Parker Drug Co., Hoboken 6, New Jersey.

FREE book "505 Odd, Successful Businesses." Work Home! Expect something Odd! Pacific-38C, Oceanside, Calif.

SELL fast 39c necessity. Wonderful repeat. National Sales and Service, Greenville, Pa.

AMAZING discovery. Master Glaze puts brilliant glass-like surface on cars. Free sample information. Big commissions. Master Glaze, Dept. 762, 7720 Harwood, Milwaukee, Wisconsin.

NEW Plastic ties. (Ready tied 4 in hand) Unique, attractive, long lasting. Fast sellers anywhere. Send $1.00 for sample or $7.20 dozen. Leader Plastic Products, Capac 2, Michigan.

HAIR Growth Amazing Formulas. Pasyk Co., Toledo, Ohio, Station D, Box 69.

500% PROFIT selling multicolor, ready-made cardboard signs for every business. Dynamic samples and catalog, 25c. R. Velvetex, 200 W. 34th St., New York 1.

SELL New Automatic Floor Waxer. Trigger on Handle. Retails $2.95. Your profit 125%. Write Smith, Inc., Greenfield 30, Mass.

FREE wholesale Magazine Subscription lists.—Magazines, Box 4633, Kansas City, Missouri.

44 HIGH-GRADE SALESMEN

ADVERTISING book matches—Cash in on big demand—sell Union Label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. P-153, 7530 Greenwood, Chicago.

AD Matches! Sell Amazing Designs—20, 30, 40 and 240-light book matches. Biggest spot cash commissions; every business a prospect. Low prices for high quality. Repeats. Start without experience; men, women; full, part time. Buy Nothing! Sales kit furnished. Match Corp., Dept. PS-37, Chicago 32, Illinois.

RICH Opportunity for Men in their 50's. Healthful, pleasant occupation. No investment needed. 150 of our men made $500 to $3,000 in one month; many just beginners. Heckman made $104 first 2 hours; Crowley made $224 first day; exceptional earnings. Openings available. Write President, Dept. PS, Box 711, Fort Worth 1, Texas. If you live in Canada, write President, Dept. PS, 25 Industrial Street, Leaside, Ontario.

45 EDUCATIONAL & INSTRUCTION

PIANO Tuning Pays. Learn this profitable profession at home. Our Tonometer and mechanical aids make learning easy. No knowledge music necessary. Diploma granted. Largest and oldest school—55th year. G. I. Approved. Write for booklet. Niles Bryant School, 77 Bryant Bldg., Washington 16, D. C.

BARTENDING and management. American Bartending School, P-334 S. Wabash, Chicago, Illinois.

LEARN Piano Tuning, Repairing—at home in 30 days. Unlimited income. Phonograph recordings, tools and instructions furnished. Write Capitol City Tuning School, Department C-133, 129 East Michigan, Lansing 18, Michigan.

USED Correspondence Courses and Books sold and rented. Money back guarantee. Catalog free. (Courses Bought.) Lee Mountain, Pisgah, Alabama.

HIGH School—No Classes. Study at home. Spare time. Diploma awarded. Write for Free catalog. HBA-20, Wayne School, 2527 N. Sheffield, Chicago 14, Ill.

WANT A Diesel Job? New Opportunities to increase income. Higher Pay. More Money. We can help you Qualify. Tools. Shop method home training. Write today! Diesel, Tractor, Heavy Equipment Division, Interstate Training Service, Dept. 2-A, Portland 13, Oregon.

BOOKKEEPERS! Increase your earnings! Operate your own simplified "Dollar-A-Week" Bookkeeping and Tax Service. Full or spare time. Details Free. No obligation. Ellis, Box 203-A, Cedar Grove North Carolina.

HYPNOSIS and Self-Hypnosis, complete course. Free details. Columbia Company, 5864-A Hollywood Blvd., Hollywood 28, Cal.

MEDICAL Laboratory Technicians in great demand. We train you in your own home. Catalogue free. Imperial Technical Institute, Box 973-B, Austin, Texas.

WELDING training pays at Hobart Welding School. Box P-131, Troy, Ohio. VA Contract. Best equipment. Catalog Free.

OPPORTUNITY without end! Industry is constantly absorbing more trained Electronic and Instrument Technicians than we can graduate. Start studying for a future in Electronics now. For information, write the Ward School of Electronics, 44 Niles Street, Hartford 5, Connecticut.

BE a Real Estate Broker. Study at home or in classroom in leading cities. Write for Free Book today. Weaver School of Real Estate, 301 Law Bldg., Kansas City, Missouri.

PRACTICAL Nursing—Learn Easily at Home. Spare Time. Big Demand, good earnings. High School not necessary. Write for free facts. Wayne School, Dept. FH-11, 2525 Sheffield, Chicago 14, Ill.

BECOME a Doctor of Psychology or Metaphysics. Learn secret of contentment, happiness. Win degree of PsD. or MsD. Solve mental worries. Free book. College of Universal Truth, 5038-K Broadway, Chicago.

WANT A 1953 Gov't Job? Start high as $73.00 week. Men-Women. 720,000 jobs! Qualify Now! Experience usually unnecessary. Free 32-page Civil Service book showing jobs, salaries, requirements, sample tests. Write: Franklin Institute, Dept. T-22, Rochester, New York.

HYPNOTISM—Homestudy! Degree! The Columbian College, Box 723-E, Covington, Kentucky.

USED Correspondence Courses and Educational Books Bought, Sold, Rented. Catalog Free. Educational Exchange, Summerville, Georgia.

ANALYZE your I.Q.! Comprehensive self-grading test, instructions $1. Union Institute, Lakewood 2, New Jersey.

FEET Hurt? Others do. Correct weak feet and fallen arches. We teach the making of Arch Supports from individual impressions of feet and foot culture. This is a streamlined low priced course. Puts you in a business profession. Archopractic Institute, Dept. C, Columbus Junction, Ia.

HYPNOTIZE! Free Picture Booklet describes fast, practical course. David Stewart, Dept. 52, Post Office, Malvern, Ontario, Canada.

DRAFTING—Home study, free booklet. Monroe Institute, PS-1, Delray Beach, Fla.

INCREDIBLE! Unprecedented! Look under "Personal"! Bijou, Box 1727-V, Hollywood 28, California.

SCHOLARSHIPS worth millions awarded yearly. For information on scholarships and fellowships in colleges and universities in United States and abroad send $2.00. Key Publications, Box 6751, Fort Davis Station, Washington 20, D. C.

HYPNOTISM. Sample lesson Free. Write Baltimore School of Hypnotism, Dept. 301-A, 4214 Belmar Avenue, Baltimore 6, Maryland.

SELF-Hypnotism: sample lesson, "101 Amazing Feats", 25c. Lloyd Collins, Appalachia, Virginia.

BANISH Stammering $1.00. J. Allen, Box 114, Saskatoon, Sask., Canada.

FREE home study course in basic economics, offered as a public service. Recommended by many leaders. Send postcard for complete information. Henry George School, Dept. P, 50 E. 69th Street, New York 21, New York.

46 CONTESTS

WIN Cash. No Tiebreakers' Crossword puzzle, send addressed envelope. POB 1221, Chicago 90, Illinois.

TIE-Breaker picture puzzles exposed, $2.00. Wenograd, Box 1495, Philadelphia 5, Penna.

$150,000-CONTESTS. Puzzle, Tiebreaker helps. Free details. Contests, 13A Earl, Red Bank, New Jersey.

47 DETECTIVES

DETECTIVE Training. Phillips Secret Service System, 1917-C North Kenneth, Chicago 39, Ill.

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write Wagoner, P-125 West 86th, New York 24.

DETECTIVE Training Course, only $12.00. Diplomas awarded. Details free. Virginia Detective Agency, Hampton, Va.

49 REWEAVING

$5.00 HOUR possible, spare, full-time at home. Instructions shipped by recognized authority for no-risk examination. Men-women reweave burns, tears, moth-holes, like new. Free details. Skil-Weave 371, Los Angeles 24.

50 BUSINESS SERVICE, INFORMATION, NAME LISTS

1,000 NAMES $3.00. James Olson, Box 513, Northwood, North Dakota.

MAILING Lists. All kinds 1000 $5.00. Dixie Service, King, N. Carolina.

CANADA Unlimited. Investment opportunities in Oil, Mines and Industry. Specific questions $2.00. Cascade Information Co., P. O. Box 5, Banff, Alta., Canada.

51 SPECIAL SERVICES

HAVE exclusive postcard beautifully foreign stamped sent airmail from abroad to your friends. Cairo, Paris, Rome amongst interesting list. Send text for four with $1.00. Correspondents Association, care of Boite Postale 112-08, Paris, France.

52 AUTHORS SERVICE

BEGINNING Writers: Get $1 to $20 checks daily writing simple children's stories, articles, poetry in your sparetime. Experience unnecessary. Our instructions reveal how. Details Free. W. Herman, 7016 Euclid, Cleveland 3, Ohio.

I Want New Writers to cash checks of $1 to $100 offered daily. The easiest way to write for pay. No previous experience necessary. Free Details. Saunders M. Cummings, 6840 Odin St., Studio 15, Hollywood 28, California.

NO Luck finding a book publisher! Write for Free Booklet PS. Vantage Press, 120 West 31st, New York.

53 ADVERTISING

ADVERTISE: 24 words, 100 Canadian Newspapers, $5.50. Lists Free. Advertising Bureau, 10511-P Springfield, Chicago 43.

54 CARTOONING, SIGN PAINTING, CHALK TALKS

"HOW To Make Money With Simple Cartoons"—A book everyone who likes to draw should have. It is free; no obligation. Simply address Cartoonists' Exchange, Dept. 191-C, Pleasant Hill, Ohio.

9 ALPHABET 3. Numeral pattern sets and raised wood letter catalog $1.00. Sign Letter Distributors, P. O. Box 101, Mineola, New York.

FREE sample copy. "Cartoonists' Market Letter." Box 187PS, LaHabra, Calif.

LEARN Sign Painting at Home. Test Lesson Free. Ben Kerns, Box 812-PS, Greenville, South Carolina.

LEARN to draw pretty girls! Details free. Cartoon Club, 1506 Goodlett, San Bernardino, California.

CARTOONISTS: Amateur and Professional. If you can draw, sketch or even trace, you can prepare yourself for the unprecedented television demand for men and women with some knowledge of animation. The famous pioneer, Max Fleischer, has designed an inexpensive, authentic outfit for home study. Address: Vera Coleman, Secretary, 60 East 42nd Street, New York, N. Y.

CHALK Talks, Laugh Producing Program, $1.00. Illustrated Catalog 10c. Cartoonist Balda, Oshkosh, Wisconsin.

MOLDED plastic letters for signs. Faulkner, Box 45, Produce, Florida.

55 TYPEWRITERS & OFFICE MACHINES

TYPEWRITER $22.50. Adders, Duplicators $12.95. Meier, 118 Spruce, Wichita 7, Kansas.

TYPEWRITERS, Printing Devices, Office Machines, supplies, appliances. Dixie Graph, King, N. Carolina.

56 RUBBER STAMPS & OFFICE SUPPLIES

3 LINES 65c; pad 40c; Signature $2.35. Print-right, Wauwatosa, Wisconsin.

RUBBER Stamps, Printing. Catalog Free. Morey's, 2529 Roosevelt, Redwood City 2, California.

RUBBER Stamps—Stationery, Reasonable. Free List. Johnson Press, Box 6-B, New York City 26.

FOUR finest quality stamps reading air mail, first class, special delivery, fragile, plus Carter's pad $1.50. Alan, Box 50, Clayton, Missouri.

57 PRINTING, MULTIGRAPHING, ETC.

1000 BUSINESS Cards $2.50 Prepaid samples Free. Reliable Print Shop, 907 East Jefferson, Louisville 6, Ky.

1,000 BUSINESS Cards, $2.35 postpaid! Other printing! Dornfeld, Iron Ridge 26, Wisconsin.

BUSINESS Printing. Samples. Prices Free. Howprint, 723-S Eunice, Webster Groves 19, Missouri.

100 8½x11 HAMMERMILL Letterheads $1.00 Postpaid. Envelopes same. Herbert Hudson, Centredale, Rhode Island.

TWO-Color 8½x11 Letterheads, 100—$1.50. Samples. D'Yarmett Service, Newark, Ohio.

PRINTING. Lowest prices. Free samples. Weeks, 342 Woodycrest, Nashville 11, Tenn.

100 8½x11 LETTERHEADS $1.00 Postpaid. Envelopes same. Race Printing, Hudson, New York.

FINE Printing—Prompt service—Wide selection modern type styles, colors, cuts. Free samples, prices. Wilcox, Nicholls, Ga.

8½x11 BOND Letterheads or 6¾ envelopes 250—$3.75, 500—$5.50, 1000—$7.00. Feather Wate business cards 250—$1.75, 500—$2.50, 1000—$3.75. Raised print 50% extra, prepaid. Magnolia Press, Box 1176, Burbank, California.

125 8½x11 LETTERHEADS and 125 envelopes $2.00 postpaid. 24 hour service. Samples free. Catalpa Press, 5519 N. Clark, Chicago 40, Illinois.

1000 BUSINESS Cards calendar Back $3.85. Embossed $4.85. Sample. Payne Sales, Des Moines 14, Iowa.

100 LETTERHEADS 20 Lb. 8½x11. 100 Envelopes $2.00. 2-colors $3.00. Fender Press, Carson, Iowa.

58 PRINTING OUTFITS, SUPPLIES

PRESSES, Supplies. Paper catalog 10c. Custom. Box 211-S, Springfield, Missouri.

DO your own printing. Save money. Simple rules. We supply everything. Print for others; good profit. Raised printing like engraving, too. Have home shop. Details free. Kelsey Presses, V-8, Meriden, Conn.

MAKE your own, self-molding, rubber printing cuts. Plexirubber, Argyle 2, Wisc.

PRINTING Presses, Type Supplies. Lists 3c. Turnbaugh Service, Loysville, Penna.

59 PATENT ATTORNEYS

INVENTORS. For "Invention Record" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

INVENTORS: When you are satisfied that you have invented something of value write me, without obligation, for information as to what steps you should take to secure a Patent. Write Patrick D. Beavers, Registered Patent Atty., 938 Columbian Bldg., Washington 1, D. C.

C. A. Snow & Co.—S-427, Snow Building, Washington 1, D. C. Registered Patent Attorneys. Write for information.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a Patent. John N. Randolph, Registered Patent Attorney, 207 Columbian Bldg., Washington 1, D. C.

INVENTORS—If you believe you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorrow, Berman & Davidson, Registered Patent Attorneys, 1434 Victor Building, Washington 1, D. C.

INVENTORS: Learn how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 32B-A District National Building, Washington, D. C.

INVENTORS—If you have a valuable invention, you are advised to authorize a preliminary search through appropriate classes of United States patents. This firm is registered to practice before the Patent Office and is available to make such search and report to you concerning the probable patentability of your invention. Instructive booklet with "Evidence of Invention" form sent upon request. Victor J. Evans & Co., 841-A Merlin Building, Washington 6, D. C.

"INVENTOR'S Guide" free. Frank B. Ledermann, Registered Patent Attorney, 154 Nassau Street, New York.

PATENTS—Irving L. McCathran, 316 McLachlen Bldg., Washington 1, D. C. Registered Patent Attorney.

60 FOR INVENTORS

INVENTORS. For "Invention Record" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, N. Y.

SEARCHES—Put your patent searches in the hands of a Registered Patent Attorney or Agent, as he qualifies to give a worthwhile patentability report. Record of invention form upon request and information on patent protection. Patrick D. Beavers, Registered Patent Attorney, 939 Columbian Bldg., Washington 1, D. C.

INVENTORS: If you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 30A, 631-E St., N.W., Washington 6, D. C.

INVENTORS! For "Copyright, Design & Patent Guide" contact Mr. Metzlerr, 11 West 42nd, New York 18.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a Patent on your invention. John N. Randolph, Registered Patent Attorney, 206 Columbian Bldg., Washington 1, D. C.

INVENTIONS Promoted. Patented or Unpatented. Established 1911. Write Adam Fisher Company, 183 Enright, St. Louis, Mo.

CASH For your ideas. 280 Manufacturers need inventions, patented or unpatented. List free. Invention Bureau, 208-S Clinton, Oak Park, Illinois.

INVENTORS: Learn how to protect your invention. Unless the inventor is familiar with patent matters he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 32A-A District National Building, Washington, D. C.

INVENTORS—If you believe you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorrow, Berman & Davidson, Registered Patent Attorneys, 1433 Victor Building, Washington 1, D. C.

INVENTORS—If you consider your invention to be something of importance take steps to protect it with a United States Patent which gives you the right to exclude others from making, using and selling your invention as claimed. "Patent Protection for Inventors" outlines steps to take to secure patent protection. Mailed promptly without obligation. Victor J. Evans & Co., Merlin M. Evans, Registered Patent Attorney, 842-A Merlin Building, Washington 6, D. C.

ADVANCE your invention through the facilities of Helgeson & Company, Box 342-A, St. Louis, Mo.

INVENTIONS analyzed for submission to industry. Harold S. Rand, 1300 Commerce Building, Rochester 4, New York.

PATENT Analyses and reports. Research and development. Arthur F. MacConochie, Mechanical Engineer, University Post Office Box 1362, Charlottesville, Va.

"INVENTOR'S Guide" free. Frank B. Ledermann, Registered Patent Attorney, 154 Nassau Street, New York.

PATENT searchers $5.00, including patent copies. 48 Hour Airmail service. "Record of Invention" free. Same careful, reliable searches conducted for patent attorneys. Capitol Patent Service, Box 664-S, Washington 4, D. C.

PATENT Searches, $5.00 including patent copies. Same reliable search as conducted for patent attorneys. Promotion and marketing services also offered. Free protection forms. 48 hour service. Patent Service Institute, 945-B Pennsylvania Avenue, Washington 4, D.C.

PATENT Searches $5.00. 48-hour service. Patent Applications and Drawings prepared. Record of Invention forms free. Write Miss Ann Hastings, P.O. Box 176, Washington 4, D.C.

INVENTORS! Idea Men! Complete Lists, all manufacturers in U.S. making related products! 5c per name, gummed labels. Minimum, 100 names. Notturno, 1104 West Broadway, Hewlett, N. Y.

INVENTORS—Send for free patent information book and inventor's record. Registered Patent Attorney, Associate Examiner, Patent Office 1922-29; Patent Attorney & Advisor, Navy Department 1930-47. Gustave Miller, 13PSI Warner Building, Washington 4, D.C.

INVENTIONS Sold, Leased. Complete Services. M. Joyce Humphries, 1425 Landtitle, Philadelphia 10.

EXCLUSIVE listing of most needed inventions. $2.00 brings you this manual. M. A. Rawson, Garner, Iowa.

61 INVENTIONS WANTED

INVENTIONS promoted. Patented or Unpatented. Established 1911. Write Adam Fisher Company, 183 Enright, St. Louis, Mo.

INVENTORS: Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information, free. Institute of American Inventors, Dept. 30C, 631—E Street, N.W., Washington 4, D. C.

MARKETING Aid—Nation Wide. Patented, patent pending, Booklet free. Market Contacts, 719-B2, Magnolia, Tupelo, Mississippi.

INVENTIONS sold on percentage basis. No fees anytime. Send descriptions, no obligation. Comercial Development, 48 Greenfield, Vallejo, California.

INVENTIONS wanted. Patented; unpatented. Tremendous Manufacturers lists. Global Marketing Service, 1404 Mitchell, Oakland 1, Calif.

INVENTORS—If you have a patent application pending in the Patent Office or if your patent has already been granted, we can help you market your invention through our nationwide contacts. Write today for complete information—free. Patent Sales Company, Box 1225, Washington, D.C.

INVENTORS having patent pending or patents for sale, write for free booklet, I.C.S., 354-P South Spring Street, Los Angeles 13, Calif.

INVENTIONS Wanted. Patented or Patent Pending. 21 years experience Promoting Inventions. National Service Bureau, 3122 Meramec St. Louis 18, Mo.

CASH buyers for ideas and inventions. Write National Inventors Institute, 4097 East 131st St., Cleveland 5, Ohio.

62 PATENTS FOR SALE

WINDOW Ventilator. Write for free photo. Claude R. Johnson, 1323 So. Fillmore, Amarillo, Texas.

64 MODELS, MODEL SUPPLIES

SHIP and Yacht model fittings; blueprints. Send 25c for illustrated catalog No. 27—Listing hundreds of items. A. J. Fisher, 1002-2 Etowah, Royal Oak, Mich.

FAMOUS Model Catalogs: Ships, Fittings, Hints, 169 pgs. 50c; Worlds Tinplate Trains, 148 pgs. 50c; H.O. Trains—Manual, 140 pgs. 50c. Each includes 50c refund coupon. Also Collectors Soldiers 25c; Old Time Autos, 15c; 100 model projects, 10c. Polk's, Dept. P-23, 314 5th Avenue, New York City 1.

BRASS Gears and model supplies for the inventor. Send 10c for catalog. Pierce Model Works, Tinley Park, Ill.

SHIP Model and yacht supplies, complete large 64 page catalogue, 30c. Wm. Wild, 510 E. 11th St., New York City.

MODELS made to order. Metal or Plastic. Ricardo, Adel, Iowa.

IT'S terrific! It's different! Reference Guide To Electric Trains. Just published. Packed full of valuable information, track layouts, ideas, wiring diagrams. Hundreds of illustrations showing trains and all available accessories. Rush only 50c. Hobby House Inc., Dept. A1, 800 Huron Rd., Cleveland 15, Ohio.

HOBBY-Model-Toy Catalog 10c. Year 'round stock—Airplanes, American Flyer, Lionel Trains, Cars, Crafts, etc. Clevemodel, 4509T908 Lorain, Cleveland 2, O.

SHIP Models Ltd. Kits, fittings, plans, custom work. 1953 catalog 25c. Box 751, Brookline Village 47, Mass.

WORLD'S Finest Illustrated Catalog-Handbooks. Railroads 92 pages 35c. Airplanes, Boats, Crafts, Hobbies, Tools 60 pages 25c. No Stamps. Print Name, E and H Model Hobbies, Room 80, 130 W. Chelten Avenue, Philadelphia 44.

BUILD miniature homes with our accurately-scaled materials. Send 25c for booklet and samples. Architectural Model Materials Inc., Dept. S-13, 4208 Armitage Avenue, Chicago 39.

65 HOME CRAFTSMAN

LAMP Size Cypress Knee $1.00! Cy Products, Ella Street, Lafayette, La.

LEATHERCRAFT, Copper Tooling, Textile Painting, Beadcraft, Shellcraft. Many other crafts. Big Free catalog shows everything you need. Kit Kraft, 7373 Melrose, Hollywood 46, Calif.

90 ALL new full size lawn ornament and novelty patterns, up to 20" high. Only $1.00. Mastercraft 128, 7041 Olcott, Chicago 31, Illinois.

LEATHER tools, lacing, supplies. Free Catalog. National Handicraft, 199 William St., New York 7.

"PRACTICAL Painting, Wood Finishing" shows how to get professional results. Furniture finishing, workshop projects, home decorating. Complete Modern brush and spray methods. Tricks you've never seen. Write Home Craftsman, 115-F Worth St., N. Y. 13.

TOOLING Copper. Free Instructions, Flock, Tools, Finishes. Bestcraft, 949 Kenwood, Inglewood, Calif.

"TOPS" in everything for leathercraft. Low priced kits, leathers, tools, lacing. Catalog 10c. Crown Leathers, 22 Spruce Street, New York 38.

LEATHERCRAFT. Everything needed by beginners, advanced hobbyists and professional leatherworkers. Largest stock of supplies in U. S. Moderate-priced tooling leathers, top-quality calfskins, tools, supplies, kits. Send 10c for Big Catalog. J. C. Larson Co., 820 S. Tripp, Dept. 2854, Chicago 24, Illinois.

REPLACES Sandpaper: Make your own Sanding Disks, or cover any wood or metal shape with aorasives. Complete Kit $2.00. San-Dit, Box 96P'S, Oconomowoc, Wisconsin.

89 FULL size Jig Saw patterns of beautiful shelves, ornaments, toys, novelties. Plus "How, Where to Sell." Only $1.00. Mastercraft 148, 7041 Olcott, Chicago 31, Ill.

WHEELS for toys musical movements patterns craftsman supplies catalog 35c. Walters Hobby Supplies, 207 French Road, Utica 4, New York.

WILD Animals! Ancient Locomotives! Six-foot Train! 34 quality Jigsaw Wall Patterns, 50c! Pauls Plans, 2233A N. 35th, Milwaukee 8, Wisconsin.

OUR biggest Leather and Craft Catalog yet! 1000's of items. Send 25c (refunded with 1st order). Russo Handicraft Supplies, Dept. 104, 245 S. Spring, Los Angeles, California.

KNOCKDOWN Cedar Chest, Lumber and Veneers. Free Price List. Giles Co., Brownsboro, Alabama.

AMAZING new Generator Flashlight, latest design, beautiful plastic case. Serviceable, fascinating. Guaranteed. $2.00 postpaid. Illustron, Moorestown, N. J.

LEATHER Secrets, complete encyclopedia of leather craftsmanship. More than 1,000 Actual-Size photos, drawings Show how to cut, carve, emboss, tool, etc. Send for free information. Baird School of Leather Carving, Dept. 21, Manitou Springs, Colorado

93 "ORIGINAL Idea" Jig Saw patterns $1.00. Professional drawing, quality printing. Full size shelves, toys, lawn ornaments, novelties. Walker Studio, PS-1, 4343 Lindell, St. Louis 8, Mo.

KNOCKDOWN Cedar chests. Write for free literature. Cedarcraft, Fayetteville, Tennessee.

VIOLINMAKERS, Amateurs, Professionals. Fine tone European wood, materials, supplies, instructions, Tools, Patterns. Illustrated catalogue 10c, refunded. Premier Violin Supplies, Dept. VPS, 430 South Broadway, Los Angeles 13, California.

100 FULL size Jig Saw patterns up to 20" high, only $1.00. Pattern Service, Medway 8, Mass.

5-IN-1 Saw: panel, crosscut, keyhole, dovetail and hacksaw. Every home handyman needs one. See it first, then send $3.95 full payment or return saw. Gercke, 8 Woodside, Malverne, New York.

LEATHERCRAFT Tools, Leather Embossing Plates, Craft Accessories, Dies. Catalogue 10c. Louis Jones Engineering Company, 1613 Main, Fort Worth, Texas.

SQUAREKNOTTERS: Make belts, handbags, lanyards, dog leashes, etc. Special offer! Beginner's book, catalog and quality cord samples 15c. P. C. Herwig Co., Dept. P41, 121 Sands St., Brooklyn 1, New York.

LEATHER Key Holster for Portable Drills, 25c Coin. Box 5211, Corpus Christi, Texas.

DO You Use Beeswax, Paraffin, other waxes? American Wax & Supply Co., 2422 West Hutchinson, Chicago 18, Illinois.

LEATHERCRAFT. New Stylecraft folder Free. New Kits illustrated, Filigree Belts, Billfolds, Purses, etc. Send 25c new catalog. Refunded first order. Apache Leather Co., 2804 East Washington St., Phoenix, Arizona.

LEATHERCRAFTERS: Big illustrated catalog of materials, tools, kits, 10c. Art's Leather, 411 Joseph Ave., Rochester 5, N.Y.

LEARN leathercraft as your new hobby this year. Leather belts, billfolds, purses are easy to make right at home. Show your friends what you can do with leather. Free Catalog shows how. Tandy Leather, Box 397-D, Tulsa, Oklahoma.

66 BUILD IT YOURSELF

SEND for big new 1953 illustrated catalog that will show you how to turn your spare time into cash—making quick-selling, highly profitable lamps. Every home a prospect. Hundreds doing it—you can, too. No experience or special tools required. Catalog No. 7 contains 56 pages filled with shades, shade frames, figurines and bases, oil lamp converters, boring compound and dozens of similar items. Also all kinds of sockets, cords, pipes, harps, finials, bases and hundreds of other parts—everything you need. Special 8-page section shows 6 beautiful lamps in kit form—ready to assemble. You buy wholesale, sell at retail—make Big profits. Send 25c today for new 1953 catalog and wholesale price list—you'll be glad you did. The 25c will be refunded on your first order. Gearon Co., Dept. 500-A1, 28 S. Desplaines, Chicago 6, Ill.

BUILD Your Own "Tractor". Free information. Eltraco D-5, Camptonville, Calif.

GRANDFATHER Clock shoptested plans dollar. Thousands built. Kuempel Clocks, Minneapolis 16.

RACING Toboggan combination brake and steering attachment. For coasting and jet propelled toboggans. Plans and specifications for brake attachment, sketches on jet installation, cost $2.00. Trans World Novelties, 2425 231st, Torrance, Cal.

BUILD with Concrete, Fieldstone, Earth. Movable form system cuts costs. Construction simplified. Free literature. Smith PS, Box 36, Eagle Creek, Oregon.

BUILD Streamlined plywood kitchen cabinets. Plans, photos, instructions 50c. Playnecabinets, 4617 Johnson, Western Springs, Ill.

START a sideline at home pleasant spare time work. Make musical boxes, toys, dolls, with our imported Swiss Music Movements. Send for free tune list with instructions. Sample unit $2.50. Maritime, 9 East 60th, New York City.

"CONCRETE Block Homes." 32-page booklet on how to build. $1.00. H. C. Lightfoot, Civil Engineer, Richboro, Penn.

BUILD your own power tools, save 90%, handbook 25c. Robert Fellows, Caledonia 4, New York.

ERADICATOR destroys flies, moths, drawings 25c. Arnold Products, Tustin, Cal.

$1400 BUILDS 6 room home with cellar. $1800 builds 7 room ranch home, complete interior, exterior, heat, plumbing. Blueprint instructions—how to save on material $1.00 each. E. Dougherty, 6 Chestnut Lane, Middletown, Pa.

ELECTRIC Welder under $10.00. Plans 50c. Kays, 1536 Smith, Pomona, California.

FREE handbook, build sawmills, block machines, freezers, tractors, scooters. Nichols Company, Purvis 3, Mississippi.

67 OLD GOLD, JEWELRY, WATCHES, ETC.

HIGHEST Cash Paid For Old, Broken Jewelry, Gold Teeth, Watches, Silverware, Diamonds, Spectacles, Platinum. Free information. Satisfaction Guaranteed. Rose Smelting Company, 29-Y East Madison, Chicago.

JEWELRY making. Send 20c for illustrated catalog. Milady-Fair Co., G.P.O. 1328, New York City 1.

5000 JEWELRY styles you can easily make yourself—Pins, Earrings, Bracelets, Rings, matched ensembles. Instructions and catalog 10c. Barrys, 126 Ardsley Court, Newark, N. J.

SWISS watches from importer. For resale only. $3.30 up. Catalog. Transworld, 565 5th Avenue, New York City.

RHINESTONES, jewelry settings, cameos, sequins, beads. Send 10c for Illustrated Catalog. J & M Novelties, Dept. CA-4, Griffith, Indiana.

68 TOBACCO & PIPES

100 CIGARS. $4.75 postpaid. Packed 25 in vacuum tin, all Havana filler, money-back guarantee. Others. Ace Mail Order Co., East Orange 2, New Jersey.

69 FOR THE HOME

WHAT'S New? Keep informed on many new gift and home items. Some just from patent office. Send today for free catalog. What's New Products, 4102-I First Avenue North, Birmingham, Alabama.

PHOTOMURALS for you by mail. Write for details. Photographic Library, RCS Studios, 123 North Wacker Drive, Chicago 6.

BESSEN Dishwasher, Automatic, Portable. Nationally advertised low $69.50 retail price. For literature write Albert Co., Dept. 8, 1409 Farwell Ave., Chicago 26, Ill.

70 OF INTEREST TO WOMEN

GOOD Money In Weaving. Weave rugs at home for neighbors on $59.50 Union Loom. Thousands doing it. Booklet free. Union Looms, 154 Post St., Boonville, N. Y.

ELECTRIFY Your Sewing Machine. It easy. Send for Free information. Alder Company, Dept. PS-34, 209 S. State, Chicago, Illinois.

WOMEN Who Sew! Invisible Reweaving is for you! Up to $10.00 profit per hour in spare time. Earn as you learn. Pay as you earn. Huge demand guarantees earnings! Details free. Fabricon, Dept. D-1, 8342 S. Prairie, Chicago 19, Illinois.

EXOTICALLY enchanting perfume $2.00 bottle. Jepson Distributors, 141 W. Robert, Salt Lake, Utah.

PERFUMED inks, makes letter writing intriguing and exciting, four colors, four fragrances in attractive plastic holder. Send $2.00 to General Mdse. Co., 391 Hoboken Ave., Jersey City 6, New Jersey, for sample offer.

TIPONS for sale in Dispenser—$1.20 to Watson-El, 111½ Monroe, Springfield, Mass.

71 FOR SALE MISCELLANEOUS

FREE catalog on government surplus bargains from country's largest surplus organization specializing in outdoor sporting goods, clothing, camping equipment, Tents, rubber boats, tarpaulins, hundreds of other items. Rockaway Sales Co., Route 6, Rockaway 8, New Jersey.

ORANGES, Florida's tree-ripened, picked to your order by private home and grove owners. $4.50 per bushel express prepaid east of Mississippi. J. D. Rapalje, Box 792A, Tavares, Florida.

SAVE On Appliances, Mowers, Power Tools, Bicycles. Send Dime. No Stamps. Box 89, Troy 1, Ohio.

72 WANTED MISCELLANEOUS

WE buy used plating equipment. Send description. Hollywood Bronze Supply, Dept. RR, 1624 East First Street, Los Angeles 33, Calif.

SCRAP Mercury (Quicksilver) containers supplied. Tantalum—Bismuth—Tungsten. Metallurgical Products Co.—Established 1909, 35th & Moore Streets, Philadelphia 45, Pa.

75 TATTOOING SUPPLIES

TATTOOING Course and Supply Brochures, 25c. Zeiss School, 728 Lesley, Rockford, Illinois.

76 DRAWING, SUPPLIES & EQUIPMENT

DRAFTING and artists' materials catalog—thousands of items—25c (deductible first $2 order). Gordon's, 219 Madison, Chicago.

ATTENTION: Draftsmen, Engineers, Students—Limited openings for agents. Take orders in spare time on drafting supplies. Attractive commissions. Alvin Company, Windsor, Conn.

LEARN Drawing. 20 lessons, 147 beautiful pictures. $1.00 complete. Aldcroft Studios, 1206 Maple, Los Angeles, Calif.

77 TREASURE FINDERS

TREASURE Hunters! New 11-pound featherweight Model 101 locator for gold, silver and minerals. Money-back guarantee best available. Also Geiger Counters for uranium prospectors. Complete information free. The Goldak Company, 1540 W. Glenoaks Blvd., Glendale 1, Calif.

SELECTIVE metal and mineral detector. Revolutionary design. Distinguishes metals from black magnetic sands. Readily detects metals under salt water. Also Geiger Counters and Mineralights. Free literature. Gardiner Electronics Company, 2018 N. Dayton, Phoenix, Arizona.

TREASURE—M-Scope Geiger Counters—Mineral Locators. Why buy something inferior when you can buy the best at a lower price? Backed by years of experience. Fully guaranteed by factory. Detects minerals, metals, gold, silver, coins. Payment plan available. Proven superior performance. Free 16 page illustrated booklet. Fisher Research Lab., Inc., Palo Alto, Calif.

GOLD, Silver, Metal Detectors. Geiger Counters for Uranium, Mineralights. Sensational new fully guaranteed models. None Finer. Information Free. Detectron Co., 5631 Cahuenga Blvd., North Hollywood, California.

78 WATCH REPAIRING

WATCH and clock repairing books for hobbyists. Free information. North American, Dept. 23-A, 2320 Milwaukee, Chicago 47, Illinois.

10 HIGH-grade Swiss Ladies' and Gents' Wristwatches needing minor repairs, $18.00. Write for prices. B. Lowe, Holland Bldg., St. Louis 1, Mo.

WATCHMAKERS' — Jewelers' complete informative catalogue 20c. Bengal Company, Culver City, California.

79 MISCELLANEOUS

RECEIVE mammoth mails, magazines, catalogs! Three months 25c, 2 years $1.00. Waddell's Directory, 341-D East 76th, New York 21.

MAKE, Sell Artificial Flowers, Corsages, Chenille Dolls, Jewelry, Starting kits, Fibre, Leaves, Shellcraft, Rhinestones, Sequins, Findings. Wholesale Catalog 10c. Profitkrafts, 4509T247 Lorain Ave., Cleveland 2, Ohio.

LEATHERCRAFT For Pleasure or Profit. Make easy-to-assemble purses, belts, gloves, woolskin toys, 100 other items for gifts or to sell. Send 10c today for big catalog. Largest leathercraft stock in U. S. J. C. Larson Co., 820 S. Tripp, Dept. 285, Chicago 24.

OUTDOOR Toilets, Cesspools, Septic Tanks cleaned, deodorized with amazing new product. Safe, easy, economical to use. Double waste digesting action. Saves digging, pumping. Satisfaction guaranteed by 150,000 customers. Postcard brings Free sample. Burson Laboratories, Dept. E-53, Chicago 22, Ill.

BIG interesting mails three months 25c, year $1.00. Harvey Teeple, Decatur, Ind.

"COMMODORE'S Commission Confederate Navy" Your Name Inserted, $1. Southern Documents, Box 4607, Jacksonville, Florida.

PANNING Gold lesson—Catalogue Beginners supplies, Mining Books, Maps, "Where To Go" Free. Old Prospector, Box 792D2, Lodi, Calif.

TINY mirror attachment for glasses enabling you to see who is behind you. Send $1.00 to Starling Co., 2206L Starling Avenue, New York 61, New York.

IF you love to make your own! Write for free information on home brewing. R. D. Zarra, Box 1185, Newburgh, N. Y.

SQUARE Dance Instructions, calls, 25 sets, $1.00. Rayburn, Eureka Springs, Ark.

300 BIG Mails guaranteed, samples, offers, plans, propositions, 12 months listing, $1.00, (refundable). Wright Publications, 2276 Hubbard, Memphis 8, Tenn.

YOUR Leather Jacket renovated expertly. Free circular. Berlew Mfg. Co., Dept. 7, Freeport, N. Y.

RECEIVE big mails, offers, etc. Three months 25c. Mailorder Mart, Box 5067-P1, Nashville 6, Tennessee.

LOOK in your wallet! You have many valuable cards, photos, that need lifetime protection sealed permanently in plastic. Wallet size 5c each, 4 for $1.00. John Wycoff, Box 68a, Waverly, Tennessee.

RECEIVE interesting mail. Name listed free. Roland Kadletz, Salmon, Idaho.

GIANT "Grab Bag"—Over 1,000 pieces, $1.00 postpaid. List Free. Dougherty, Box 12, Phillipsburg, New Jersey.

$1.00 BRINGS you photo (c) King Snake Killing Vicious Rattler. XYZ Ranch, Box 5142, North Long Beach, Calif.

BUY vitamins direct. Amazing savings. Catalog free. Matoska, White Bear Lake, Minn.

GUARANTEED Tax Savings up to $300 yearly or your money back. Simply send $5 for complete details to Dyar Taxsaver, Box 17, Monroe, Louisiana.

GROW living miniature trees at home. Fascinating, profitable. Complete instructions plus chemicals, $2.00. Details free. "Revealer" Box 37, New York 53, N. Y.

FEET Itch? TXD guarantees positive relief $1.00. Star Specialty House, 5901 Belmar Terrace, Philadelphia 43, Penna.

80 PERSONAL

MEXICAN legal matters. A. Espejo, Box 234, Hermosillo, Sonora, Mexico.

DETECTIVE'S Opportunities. Detective particulars free. Write, Wagoner, P-125 West 86th, New York 24.

PSORIASIS Victims: Hopeless? New Discovery! Free Trial offer. Write Pixacol, Box 7097-S, Cleveland, Ohio.

"HOW Can I Find Out?" You Can! Information confidentially developed. Any matter, person, problem. World-wide. Officially licensed. Established 1922. William Herman, 170 Broadway, New York.

IT'S New—Wonderful—"T.D.T." for "Itchy Scalp" and "Dandruff Control", send $3.00 money order for formula. Also remedy for "Bad Odors" of feet. No stamps. T.D.T. Laboratories, 615 West Kibby St., Lima, Ohio.

GETTING Bald? Benefit by my experience. Read "I'm Growing Back My Hair." $3.00. Box 784, University Branch, Coral Gables, Florida.

BORROW by mail. Loans $50 to $600 to employed men and women. Easy, quick. Completely confidential. No endorsers. Repay in convenient monthly payments. Details free in plain envelope. Give occupation. State Finance Co., 323 Securities Bldg., Dept. W-14, Omaha 2, Nebraska.

LETTERS remailed. Washington, D.C. or Pentagon postmark, 25c. W. Fountain, 1111 Graham Road, Falls Church, Va.

JOIN National Guild Hypnotists. Details, Hypnodiscs etc. 10c. Guild, 48B Harlem, Dorchester 21, Massachusetts.

DENTAL plates broken? Repair yourself easily. Dental Fix-It-Kit only $2.95. Satisfaction guaranteed. Dental Products, Box 674-A, Kansas City, Missouri.

"D-FOG" Prevents fogging, steaming eye glasses. Avoid embarrassment, accidents. Guaranteed. Years supply 50c. D-Fog, Box 205, Gene Autry, Oklahoma.

ASTOUND Everybody with your "X-Ray Mind." For this Great Power over others, send for Maravedi el Krishnar's amazing course, "Analyze People At Sight." Only $2.95 postpaid. (Book—without course—$1.98) Krishnar Institute of Universal Knowledge, 1912 Lincoln-Park-West, 4PS-1, Chicago 14.

HAPPINESS, Romance, Contentment. Interesting, confidential information sent Free to single persons. Write today. Strone, 2488-PS Concourse, New York 58.

CONFIDENTIAL information for single people, leading to happiness—romance. Write today! Dr. Karl Miles, Ph.D., Director, Personal Acquaintance Service, Inc., 601-G South Vermont, Los Angeles 5, Calif.

DON'T learn too late that you have high blood pressure! Hypertell pulsimeter gives visual pulse reading and warns of existing Hypertension. "It's later than you think". Fountain pen size, carry in your pocket, guaranteed $3.00 delivered. No C.O.D. please. Hypertell, Box 336, Coulee Dam, Washington.

LETTERS remailed San Francisco Postmark 25c. Private receiving-forwarding address available. Shanks, Box 3110-G, San Francisco 19, California.

100 TRICK Knockouts for self defense. $1. 1c each. Lincoln, 529 Main, Evanston 9, Illinois.

LET'S Trade Ties. Send yours with $1.00. Receive others. Ernest Winings, Box 886-A, Trenton, New Jersey.

MAKE your own Will. Guaranteed Legal, $1.00. Informational Services, Box 911, Paducah 9, Kentucky.

"INTERESTING Mails"—25c keeps your mail box full three months. Bentz, Desk-H/82, Chatawa, Mississipoi.

INFORMATION for single people by Human Relations Consultant. Dr. B. Long, Box 375, Los Angeles 53, Calif.

INCREDIBLE! Unprecedented! Become a mental superman overnight! Floor everybody! No studying! "Memoprop" does all your thinking! It's uncanny! Revolutionary! Write: Bijou, Box 1727-V, Hollywood 28, Calif.

PILES! Tormented with the irritation and discomfort due to piles? Write for free important information. Mutual Products, Box 836-P, Cleveland 22, Ohio.

IF you are nervous write The Herbmaster, Forestville 8, Virginia.

LETTERS Remailed 25c. $1 brings 6 postcards remailed free. M. DePerro, 2124 Genesee St., Buffalo 11, New York.

Precision Binoculars at CUT prices

COATED • PRISMATIC • COLOR BALANCED

Absolute MONEY BACK Guarantee!

Look to old reliable Thoresen's for fine Binoculars at deep cut prices. Every binocular listed is **COATED, ACHROMATIC** and **PRISMATIC!** Best of all, they are **FOCUS BALANCED**, a Thoresen feature that gives enjoyable viewing without annoying aberrations. All have pigskin or fine calf carrying cases & 2 straps. We defy **ANY** competitor to match this quality or prices!

NOTE—ALL PRICES FULLY TAX PAID—NOTE

- **7 x 50 mm Individual Focus (No. 157) Tax PAID** 33.95
- **7 x 50 mm Center Focus (No. 153) Tax PAID** 39.85
- **6 x 15 mm Tiny Pocket Size (No. 154) Tax PAID** 16.75
- **8 x 30 mm Center Focus (No. 146) Tax PAID** 38.50
- **20 X Telescope. Light Pocket Size. POWERFUL!** 8.65

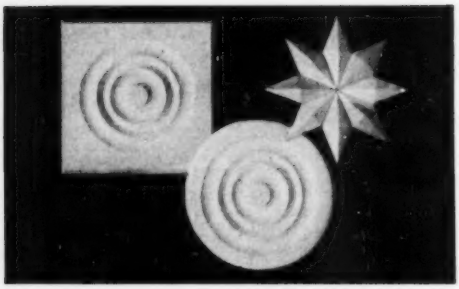
Send check or money order for quick prepaid delivery. COD's plus post. 5 Day Money Back Guarantee! Why pay more? Buy the Thoresen's way and **SAVE!**

Thoresen's

140 Fifth Ave. Dept. 7-A-500, New York 11, N. Y.

SPECIAL!
16 x 50 mm
COATED CENTER FOCUS **66.50** TAX PAID

LOOK!
10 x 50 mm
COATED I.F. **49.95** TAX PAID



ROSETTES

for your Garage Doors, Shutters, Cabinets and Doors

Garage Doors

Shutters

Cabinets and Doors

Decorators and architects everywhere are using Rosettes to add a touch of elegance and beauty in those unexpected places. Hundreds of applications...from a dressed-up garage door to a spark of beauty in the breakfast nook.

Easy to apply in minutes. Made of selected Kiln dried white pine treated to prevent warping and rotting. Complete instructions for quick installation enclosed with every order.

HILLSIDE PRODUCTS Box 179, Melrose Park, Ill.

8" 90c ea. 6" 70c ea. 5" 60c ea. — 8" 90c ea. 6" 70c ea. 5" 60c ea. — 7" Sunburst —8 separate sec. 80c ea.

Four Rosettes of any style is minimum order accepted. Please send postpaid quantities of each size indicated above for which I enclose $.....

Money Order..... Check.....

NAME.....

ADDRESS.....

CITY.....STATE.....

CASH IN YOUR SPARE TIME!

BIG MONEY IN OWN BUSINESS

YOU CAN MAKE UP TO $40 a DAY sharpening and setting circular saws for factories, builders, lumber yards—with NEW BELSAW COMPLETE CIRCULAR SAW SHOP. **Low Cost, only $15 down,** sharpens 4 to 5 saws an hour. *No experience needed!* Instructions Furnished. Send Postcard Today for FREE BOOK. ▶

LIFE-TIME SECURITY YOUR OWN BUSINESS

BELSAW MACHINERY CO. 4405 Field Bldg. Kansas City 11, Mo

POWERFUL!

IMPORTED FROM

GERMANY

▶ $3. with Waterproof CARRYING CASE

Don't pay $10.00 for crudely made binoculars claiming 18 mile ranges! Forget the low price . . . just look thru them ONCE. You'll be convinced of their terrific quality! Kleer-Power lenses made by German artisans. Bring in distant people and objects with amazing clarity! Center focusing! Light weight, easy to carry, yet **STRONGLY** made! Ideal gift for father or son! Gives him a ringside seat at games, theater, nature study. Order by **No. 134**—only **3.00. SPECIAL!** De Luxe Hi Power model (**No. 134-B**) with waterproof carrying case and **COMPASS,** now only **3.95.** Why pay more? Buy **DIRECT** from importer and **SAVE!** Order now—mentioning model number. Pay price plus post on delivery. **SAVE** postage by sending check or m.o. now. Absolute satisfaction or your money back.

THORESEN'S, Dept. 7-A-134, 140 Fifth Ave., New York 11, N. Y.

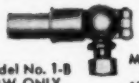
SPATZ PISTOL INVENTION!

$2.98 full price Complete with 50 bullets postpaid

Simplified percussion action

Permits low cost shooting. Not an air or CO^2 gun. Light 16 mg powder charge shoots .12 caliber lead bullets. Works like cap pistol . . . has only 4 moving parts. 5 inch barrel. Free pamphlet on expert target shooting, indoor-outdoor target ranges. Ammunition at stores. Limited quantity Spatz pistols. Sold direct only. Adults only. Send $2.98 to **LUNDE ARMS CORPORATION, BOX F54, ALHAMBRA, CALIFORNIA**

BULL DOG HITCHES



Heavy Drop Forge Steel Construction. Strong — Safety-Engineered Reliable

Model No. 1-B NOW ONLY $4.95 Post Paid (when paid in advance)

Made for trailers with up to 2,500 pounds capacity.

1⅜" dia. shank — Fits 1¼" pipe tongue

HAMMER BLOW TOOL COMPANY

Wausau 14A, Wisconsin

ELECTRIC SHEAR SHARPENER

Over 85,000 Sold—It Must Be Good

Genuine Carborundum wheel ideal for shop or home use. Send remittance with order and shipment will be made at once, prepaid to your door, complete with electrical goods catalogue.

Motor driven **$9.75** complete with vise

WILLIAM MARVY COMPANY, Dept. 90
479 St. Peter Street — St. Paul 2, Minn.

FAMOUS Battle Saber

$2.95 POST PAID

A TREASURE FOR COLLECTORS

Carried in battles of the past. Used also as bayonet on Springfield 1861 Rifling Black Bolies.

Ideal for mounting as wall decoration. Two sabers can be attractively crossed. Made in Solingen from finest German steel. Length 31½"

FREE ... if you order now! Handsome black leather scabbard trimmed in shining steel.

Money back guarantee. No C.O.D.'s please.

WINFIELD ARMS CORPORATION

409 East Pico Blvd., Room PS-1, Los Angeles 15, Calif.

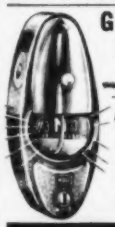
PORTABLE GARAGE

Plastic Vinyl **$6.75**

USE IT ANYWHERE

● Folds compactly ● Keeps rain, snow, dust, salt air, sun or sleet away ● Protects your car's finish ● Durably constructed of vinyl plastic ● Springtite plasticized bottom, holds securely in all kinds of weather ● Fits all makes ● Direct from manufacturer ● Enclose check or money order for 6.75, or sent C.O.D. 10-day Money Back Guarantee. **MARDO SALES CORP., 480 Lexington Ave., Dept. G-911, New York 17, N.Y.**

GIVE TRAFFIC JAMS THE SLIP WITH A HULL AUTO COMPASS



● Leave main highways at will, without losing bearings on strange side roads. A HULL gets you there the quickest, surest way. Write for local dealer's name, free literature.

HULL MFG. CO. P.O. Box 246-E-1 Warren, Ohio

Beaconlite ILLUMINATED $6.95 — STREAMLINE STANDARD not illus. $4.95

5-HP Gravely Tractor powers 21 tools—does every lawn, garden, and field job *easier, better!* All-gear drive. Reverse. New "Power vs Drudgery" Booklet FREE. Write for it today!

★GRAVELY★

BOX 184 DUNBAR, W.VA.

FIELD-TESTED FOR 32 YEARS

CARBURETOR TOO RICH

MAKES MOTORIST TOO POOR

Car owners who are wasting money, getting poor gas mileage due to over-rich mixtures, will be pleased to learn how to save gasoline by **VACU-MATING OVER-RICH MIXTURES.** Vacu-Matic fits all cars, trucks and tractors. *Automatic* and operates on the supercharge principle. Easily installed in a few minutes.

SALESMEN WANTED! Big Profits

For **FREE** particulars, how you can install one on your own car for introducing, just send your name and address on a postcard to **VACU-MATIC, 7617-1982 W. State St., WAUWATOSA, WIS.**

Mustang **LIGHTWEIGHT $370.00** (Fed. tax paid, at factory)

9.5 hp. 4-cycle. 3-speed. Foot-shift. Over 70 miles per gal. Over 60 m.p.h. Write for free circular.

MUSTANG, Dept. PS
635 W. Colorado, Glendale 4, Calif.

***Dustite* GASKET**

SEALS METAL CASEMENT WINDOWS

SAVES FUEL! ADDS COMFORT!

Flexible sealing lip controls Dust, Draft, Rain, Bugs. Seals and insulates metal contact between frame and window. Controls condensation where storm windows are used. Ideal for air-conditioned homes. Write for sample.

DUSTITE PRODUCTS COMPANY
6 CANTERBURY DRIVE, DAYTON 9, OHIO

Saves Digging, Pumping, Moving!

OUTDOOR TOILETS

CESS POOLS • SEPTIC TANKS

Cleaned—Deodorized

Banish offensive odor of disposal units with amazing new product! Just mix dry powder with water and pour into outside toilet, cesspool or septic tank. That's all! Absolutely safe—non-toxic, no poisons. Will not harm livestock, poultry, trees, grass. Works like magic to reduce mass, to eliminate odors, to unclog walls and pipes . . . to facilitate free and easy drainage. One treatment lasts months and months.

FREE SAMPLE

Just send your name and address on a postcard for actual "convince yourself" sample and complete details. Discover this new, easy way to clean, deodorize and sanitize disposal units . . . at amazing low cost. Learn how to avoid excessive, costly digging, pumping and moving. Write today for **Free Sample** & full details.

BURSON LABORATORIES, 951 Willard Ct., Dept. 195, Chicago 22, Ill.

***Yours* ALMOST AS A GIFT!**

Only 25¢ For This Entire Set of

25 HITLER STAMPS

Amazing Bargain Offer! 25 Stamps All Different!

Guaranteed to Be Worth Over TWICE As Much!

MORE people buy stamps from Littleton than from any other concern in the world! To introduce our services, we offer this amazing bargain—25 colorful Hitler stamps, from five different countries: Germany, Poland, Bohemia-Moravia, Russia, Italy. All issued when ruthless Nazi dictator was at height of power. All different. All sought after. The entire set now yours almost as a *gift*—only 25c! And if you act at once, we will send you —FREE—the valuable stamp magnifying glass shown at right. Stamps and magnifier together worth $1.00 at retail. We'll also include other interesting offers for your inspection. Offer may have to be withdrawn soon—so rush coupon TODAY to: Littleton Stamp Co., Dept. 1-PS, Littleton, N. H.

FREE —If You Act At Once!

Valuable Stamp Magnifying Glass—Enables you to see fascinating details on stamps. Also to find mistakes that make stamps valuable. FREE while supply lasts!

LITTLETON STAMP CO.
Dept. 1-PS, Littleton, N. H.

I enclose 25c. Please send set of 25 Hitler Stamps—all different. Also send FREE—while supply lasts—the stamp magnifying glass described above.

Name .....

Address .....

City ..... State .....

It's a cinch to Install!

Combustioneer®
AUTOMATIC
HUMIDIFIER

A few dollars, your own tools, a couple of hours will give your home all the benefits of healthful, protective *automatically humidified air!* Yes, in your *present* warm-air furnace—coal, gas or oil! No plumbing necessary!

Exclusive **Combustioneer** *features*...Twin-Valves of stainless steel, can't rust, corrode or leak . . . "Noverflow", prevents water dripping *inside* furnace . . . big "Thirsty-Thick" ceramic plates for larger water evaporation area . . . Selector Dial for positive humidity control . . . Water pan of heavy stainless steel.

Low Prices! Model CH-300, 4 plates for 13" to 20" plenum (width or length), $20. CH-200, 6 plates for 22" to 25" plenum, $22, F.O.B. Springfield, Ohio. Prices include 10 feet of tubing, saddle valve and adjustable hinge face plate. Immediate shipment. Check or Money Order. **Combustioneer DIV.**

THE STEEL PRODUCTS ENGINEERING CO.
1274 W. COLUMBIA STREET, SPRINGFIELD, OHIO

Pat. 85...$1.00

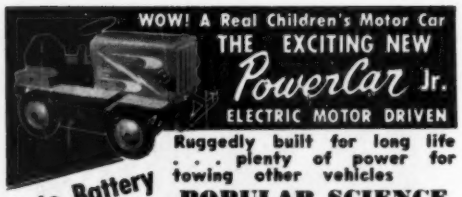
BUILD THIS 11½-FT. BOAT YOURSELF WITH WELDWOOD® PLYWOOD AND EASI-BILD* PATTERNS

Like to row, fish, swim, go boating? Like to make things with your own hands? Can you use a saw? A hammer? Build this boat in your spare hours; enjoy using it all summer long. Build it of Waterproof, Exterior Grade, Weldwood Fir Plywood. Small cost, fun to do, gives whole family years of enjoyment.

Send today!

Full-size patterns for framing and all important parts are included with Pattern No. 85. Directions are clear, easy to follow. Send $1 cash or money order. *Trade Mark, Easi-Bild Pattern Co.

UNITED STATES PLYWOOD CORPORATION
World's Largest Plywood Organization
Pattern Dept., P. O. Box 215, Pleasantville, New York



WOW! A Real Children's Motor Car
THE EXCITING NEW
PowerCar Jr.
ELECTRIC MOTOR DRIVEN

Ruggedly built for long life . . . plenty of power for towing other vehicles

Auto Battery Powers Cars For Kids

POPULAR SCIENCE editors thought so much of the POWERCAR Junior that they ran a feature story in the September issue, Page 136.

Send for full information about children's motor vehicles and special offer.

MYSTIC RIVER SALES COMPANY
Dept. Q-1 Mystic, Conn., U.S.A.

WHAM-O SPORTSMAN* $1.50 POSTPAID 35-LB. PULL!

HITS LIKE A RIFLE—
KILLS RABBITS, SQUIRRELS.
Powerful, silent, accurate.
For hunting, target, routing pests.
Sportsmen's choice sold world over!

HUNTING SLINGSHOT
Heavy duty 7" ash stock.
40 steel balls, extra rubber, target.
GUARANTEED. At dealers, or send $1.50 to
Wham-O Mfg. Co. Box 88, South Pasadena, Calif.
* **Professional model of Nat'l Slingshot Assn.**

Reduce RADIO NOISES

SIMPLY PLUG Radio or Appliance cord into Noise Eliminator and plug into wall socket. Enjoy reception FREE from many distracting noises. Send No Money, pay postman **$1.25** each (**2 for $2.00**) plus postage or send cash and we'll mail postpaid. Try 5 days, money back if not delighted. Many hundreds of satisfied users. Send for yours today. $1.25 EA 2 for $2.00

MERIT SALES, DEPT. N-27
800 Edmondson Ave. Baltimore 28, Md.

FIREARMS & SWORDS

You don't want to miss our new thrill-packed catalog. Fascinating background and illustrations of 1300 authentic pieces. Exceptional values in hard-to-find items. For your 120 page catalog #28 simply send 50c to cover postage and handling with your name and address.

ROBERT ABELS, Box P3, 860 Lexington Ave., New York 21, N. Y.

irish Tape

TAPE RECORDER FANS!

AT LAST! Here is a new low price for finest quality *plastic* magnetic recording tape for recording speeds from 1⅞ to 7½ inches per second—**Cat. No. 195 RPA**

- Send 12c in stamps if you wish to try a sample

1200 ft. with plastic reel **$3.50***
600 ft. **$2.25***
*add'l 10% discount for lots of 10 or more.

We stock a full line of famous make blanks, cutting needles, and all recording supplies at 40% off.

- **Empty plastic reels, 3", 10c; 5", 24c; 7", 30c**

Send check or M.O. for FREE shipment on order over $20.00.

COMMISSIONED ELECTRONICS CO.
2405—18th St., N. W. Washington 9, D. C.

READY CUT HOMES

$2150 AND UP DIRECT FROM MILL

YOU SAVE the items which help make today's building cost expensive: high labor cost, contractor's profit and overhead, insurance, architect's fees. Cut-to-Fit eliminates usual lumber and material waste, also costly mistakes. Anyone can assemble. Simple, easy-to-follow plans furnished and each part numbered. Complete with all lumber, roofing, nails, glass, hardware, paint, doors, windows. Freight paid. Low-cost building plans sold separately if desired. 57 Homes and Floor Plans.

5 EASY PAY PLANS
COLOR CATALOG
Send 25c

INTERNATIONAL MILL & TIMBER CO.
Dept. P. S. 13 Bay City, Mich.

MAKE MONEY SELLING Eshelman Tractors Plowing Snow From Roads and Driveways

RAKES, PLOWS, CULTIVATES, HARROWS, HAULS, SPRAYS, SAWS, DOZER, MOWS, CUTS, ROLLS, TILLS, SNOW PLOW

ESHELMAN

FROM $95 PLUS TOOLS

MAKES WINTER JOBS EASIER

Also SNOW BLOWERS RIDING TRACTORS & POWER REVERSE
Women can operate it. Free Catalog.
Write nearest branch.
Eshelman Co., Dept. 41
119 Light St., Balto-2, Md. 353 N. Michigan Ave., Chicago-1, Ill. 1051 Lakest., Reno, Nev.

MAKE ANY SIZE FOLDAWAY TABLE, WORK BENCH ETC.

4 COMPLETE 30" LEGS $7.98 PLUS POSTAGE FOR 15# WEIGHT OR SHIPPED EXPRESS COLLECT ORDER TODAY!

with **FOLDAWAY** TUBULAR STEEL FOLDING LEGS

SHIPPED COMPLETE, READY TO FASTEN TO YOUR TOP IN A MINUTE • FOLDS FLAT, EASY TO CARRY AND STORE • RUBBER TIPPED • MAKE A SMART PING PONG DISPLAY, MODEL TRAIN, PICNIC OR BANQUET TABLE Satisfaction Guaranteed

FREE CIRCULAR

THE DIAMOND MFG. CO. PS1 1100 ALTAMONT AVE SCHENECTADY 7, N. Y.

DRAINS Cellars, Laundry Tubs;
IRCULATES Oil; IRRIGATES Gardens

Original "Type P" Pump has 2400 GPH capacity. 360 GPH 75' high, or 1500 GPH from 25' well. Use any 1/8 to 1/2 HP motor. DOES NOT CLOG. **See Popular Science, August, Page 200**
Only $6.95 postpaid if cash with order (West of Mississippi, add 50c.) **$6.95** Motor coupling included.
MONEY BACK GUARANTEE!
Also Gear Pumps in all sizes.
LABAWCO PUMPS, BELLE MEAD 3, N. J.

World's Most Interesting CATALOG! FREE!

Nearly 100 Pages
Thousands of Sports Items!

Amazing Bargains!

No other catalog like it! You'll discover sports equipment here you can't buy anywhere else—bargains galore—famous name merchandise. For fishermen, hunters, campers, sportsmen, athletes. Ready for mailing about Feb. 10.

GATEWAY SPORTING GOODS CO.
Dept. E3 1321 Main St. Kansas City 6, Mo.

UNITED
SEAL OF QUALITY

This seal etched in your binocular certifies it is a UNITED "Best-By-Test" UNI-COATED binocular. Your guarantee of satisfaction.*

Precision ground. Featherweight. **Achromatic.** UNI-COATED*. Moisture-Dust proofed. Compare Price-Quality then **BUY UNITED.**

6x	4½ oz. Pocket	$16.95
6x30	15 oz.	27.95
7x	Chrome Pocket	19.95
7x35	5" x 6½"	45.50
7x35	CENTER FOCUS	49.50
7x40	CENTER FOCUS	52.50
7x50	31 oz! Bargain!	36.00
7x50	CENTER FOCUS	39.50
8x30	18 oz.!	32.50
8x40	More Power	54.50
8x40	CENTER FOCUS	62.50
10x	Pocket 7½ oz.	24.95
10x30	Compact Power	39.50
10x50	CENTER FOCUS	59.50
12x50	CENTER FOCUS	67.50
16x50	27 oz.! Tremendous power	69.50

GERMAN
WORLD'S LIGHTEST

8x30	4"x5¼" 11 oz.	$39.50
7x35	5"x6" 14 oz.	57.50
20x56	8½"x6¾" 27 oz.	99.50

Made in Germany, optical center of the world! UNI-COATED* "Whisper Weight", *CENTER FOCUS* prismatic binoculars with individually focusing right eye piece. Follow moving objects faster, easier. Enjoy clearer, sharper, brighter images.

15x to 40x
6 TELESCOPES IN ONE!

American made Wollensak telescope. Instant focusing at 15x, 20x, 30x and 40x, etc. Turn power tube to click-to guesswork. Telescope measures 9" closed, 27" when extended. Weighs 18 oz.! Rustproof chrome tubes. All 12 optic surfaces are **COATED.** See .22 bullet holes clearly at 500 feet. Use also for astronomical observation. **$30.75** price **includes** fine leather case. *Federal Tax Free!*

20x TELESCOPE 7½ oz.! 8¾" closed, 13½" extended. UNI-COATED*. Federal Tax Free—**$8.95**

UNI-COATED* Assuring buyers that applications of magnesium fluoride have been applied to the interior sides of the **VITAL** front and rear **ACHROMATICS** assuring users brighter, clearer, sharper images than ever before. **FROM 3 CONTINENTS** come **UNITED'S "BEST-BY-TEST"** binoculars. Above are from America, Germany and where not indicated, from American influenced Japan where skilled German optical craftsmen tutored local optical workmen in advanced techniques. It explains why the quality is so **HIGH** and the price so **LOW.**

FREE 3 color 40 page catalog listing over 60 different models UNITED, Zeiss, Hensoldt, Etc. from **$14.95.**

30 DAY FREE TRIAL. If not fully satisfied, return for full refund. Cash orders postpaid. C.O.D.'s require $2.00 deposit. Add Federal Tax. Prices all include handsome genuine leather case, straps!

UNITED BINOCULAR CO. United Bldg. 9043 S. Western Ave.
Dept. ARF-7816 Chicago 20 DEALERS WANTED
Display Sales Rooms open Mon.-Fri. 9:00-5:30

Malayan THROWING DAGGER

BALANCED TO STICK! $1.98 postpaid

The MALAYAN FIGHTING KNIFE is used for self-defense, killing game, target skill. Powerful, silent, accurate weapon. Splits 1" board at 30 ft.

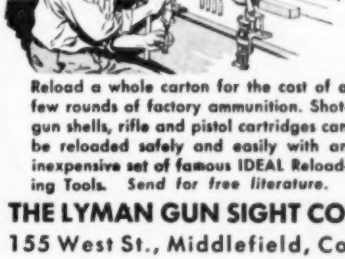
EASY TO THROW!

MONEY BACK GUARANTEE

Fun, Thrills, Excitement! Indoors—outdoors. Learn this Sport! Easy to throw accurately with our clear instructions. Beautiful, heavy-duty 10" knife. Tempered steel. Tough, rawhide-bound handle. Rare souvenir, unusual bargain. Limited quantity. At dealers or send $1.98

WHOLESALE IMPORT CO Dept B, 604 Morengo, Alhambra, Calif.

AMMUNITION
for a fraction of regular cost



Reload a whole carton for the cost of a few rounds of factory ammunition. Shotgun shells, rifle and pistol cartridges can be reloaded safely and easily with an inexpensive set of famous IDEAL Reloading Tools. *Send for free literature.*

THE LYMAN GUN SIGHT CORP.
155 West St., Middlefield, Conn.

OK *Save Money, Assemble 'em Yourself!*

Model Plane Engines

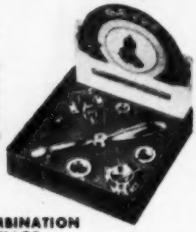
● Here's a buy for you modelers who like to tinker. Assemble your Cub .049 with an OK Power Kit—a $6.15 value for only $4.95. By saving us the cost of assembling, you learn the principles of internal combustion engines . . . have the fun of building a real powerplant from prop to fuel tank . . . **and Save $1.20!**

● On a weight/output ratio these famous record-smashing Cubs equal a full-size aircraft engine in power. They weigh as little as 1½ oz.—develop up to 15,000 rpm! Crankcases are exceptionally rugged—cylinders and shafts are crashproof. **Fully guaranteed.** Available in two types of money-saving kits . . .

OK CUB .049 POWER KIT

Kit contains:

.049 Cub (Unassembled) value	$5.25
Combination engine mount and fuel tank, neoprene tubing ..... value	.50
Spin Starter ..... value	.25
Propeller ..... value	.15
Total Value ...	$6.15
Your Cost	4.95
You Save	$1.20



COMBINATION PACKAGE

(Includes assembled engine, prop and tank.)

Cub .039 . $4.95 Cub .074 . . $6.75
Cub .049 . . $5.75 Cub .099 . . $7.75

See your Hobby Shop Dealer. If not available send check or money order. Add 25c for postage. Sorry, no C.O.D's.

Herkimer Tool & Model Works, 176 Harter St., Herkimer, N.Y.

Assemble a Roberts KIT-CRAFT BOAT

You can have a strong, fully guaranteed Roberts Kit-Craft Boat and save 50% by assembling it yourself. Finest marine materials . . . all brass screws . . . no "throw-away" jig required. All parts prefabricated!

14 MODELS • 8 to 18' • FROM $39

Prams — Car Tops — Skiffs — Rowboats — Cruisers
Sailing Prams — Speed Hulls — Runabouts

SEND FOR BIG FULL COLOR CATALOG . . . 25c

ROBERTS INDUSTRIES, INC.
3170 NORTH MAIN ST., BRANFORD, CONN

ROBERTS-ROSS INDUSTRIES, LTD.
ORILLIA, ONTARIO, CANADA

ANTIQUE GUNS

HUNDREDS OF BARGAINS!

BIG ILLUSTRATED CATALOG
PIONEER GUN SHOP
SEND 50¢

DEPT. I 11010 VICTORY BLVD., NO. HOLLYWOOD, CALIF.

GROW MINIATURE TREES

Grow authentic, LIVE dwarf trees!
Fascinating hobby! Fabulous profit!

SEND FOR FREE SEED & INSTRUCTIONS!

MINIATURE NURSERY CLUB
Dept 4-E.P.B. Box 18696, Rimpau Sta.
Los Angeles 19, California

Build your own *JET ENGINE!*

Order these plans today

1. JET PROPELLED BICYCLE. Assemble your own. Photo and instructions $1.00.
2. HOW TO MAKE EXPERIMENTAL JET ENGINES. Seven sheets drawings with information and instructions $2.95.
3. BOTH OF ABOVE in one order $3.75.

SEND NO MONEY. Order both at once $3.75 C.O.D. in USA plus c.o.d. postage. Send check or Money Order and we pay postage. Get other information too. Rush Order.

J. HOUSTON MAUPIN, Dept. 66, Tipp City, Ohio

For Discriminating Users

Scientists, explorers and engineers choose Burgess Batteries where lives depend on battery power, because they are recognized as best by the experts. Insist on using Burgess Batteries in your flashlight. Burgess Battery Company, Freeport, Ill.; Niagara Falls, Can.

A Quality Dry Battery For Every Purpose

Introductory Offer $1.00

New WINDSHIELD WASHER

SIMPLER TO OPERATE
LOWER IN COST
EASIER TO INSTALL

Guaranteed trouble free operation . . . outperforms $8.95 custom models. Can't clog . . . easy to refill. Visible fluid supply. One filling cleans windshield 35 times. TRY 10 DAYS ON YOUR CAR AT OUR RISK. Act now . . . Supply limited! C.O.D. plus postage—send check, cash or money order—we pay postage.

YOUNG PRODUCTS - Dept. 1046 2605 Elmhurst, Detroit 6, Mich.

PRESTO! ANYONE CAN MASTER GLAZE

Car Owners! Meet Master Glaze—the sensationally different luster for new and used cars! Not a wax—not an oil polish—not a paint!—nothing that "smears" over the surface.

MASTER GLAZE is a unique discovery—a creamy liquid—quick and easy to apply! Gives a hard, glass-like surface. Even gasoline cannot dull it! Lasts six months to a year! Amazing luster—beautiful, sparkling clean and brilliant! Doesn't finger-mark—doesn't smear! A match box full glazes an entire car. Seals the pores—protects! NOTHING LIKE IT!

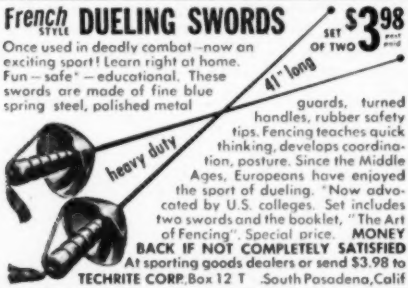
AGENTS
An unusual opportunity! Quick, flashy demonstrator. Big profits. Good territory. Write today!

FREE SAMPLE
Just send your name and address to
MASTER GLAZE CO., 7720-759 W. Harwood Ave., Milwaukee, Wis.

French STYLE DUELING SWORDS

SET OF TWO $3.98 post paid

Once used in deadly combat—now an exciting sport! Learn right at home. Fun—safe—educational. These swords are made of fine blue spring steel, polished metal guards, turned handles, rubber safety tips. Fencing teaches quick thinking, develops coordination, posture. Since the Middle Ages, Europeans have enjoyed the sport of dueling. Now advocated by U.S. colleges. Set includes two swords and the booklet, "The Art of Fencing". Special price. MONEY BACK IF NOT COMPLETELY SATISFIED



At sporting goods dealers or send $3.98 to
TECHRITE CORP. Box 12 T South Pasadena, Calif

GIANT BALLOONS

They're really BIG. Genuine gov't. surplus weather & target balloons. Lots of fun for all the family, in backyard, for parties, picnics, dances, fairs, etc. Sure to attract a crowd for business events, conventions, exhibitions, trade shows. Used by lodges, civic groups, schools from coast to coast. These are terrific attention getters! Send for your GIANT BALLOONS today.

3 Ft. Dia. 49c—6 Ft. Dia. 79c —13 Ft. Dia. $1.59

• *Add 10% for handling & postage. Calif. res. please add sales tax.*

WAR ASSETS DIV. Volume Sales Co.
Dept. S-1-53, 3930 Sunset Blvd. Los Angeles 29, Calif.

SAVE UP TO $100.00 on your STORM WINDOWS

Assemble Combination Redwood or Aluminum Storm Windows Yourself!

These patented storm windows regularly sell for $22.75 assembled. Now **only $6.50** knocked-down and shipped to you. With only screen cloth and glass to buy locally, your total storm window cost is only about $8.50 each. Upper and lower sash snap out **from inside** for easy washing. Screen replaces top or bottom sash during warm months—self storing in upper portion in winter. Frame stays in year 'round. No storage problem whatsoever. Only top-quality kiln-dried redwood. All standard window sizes. Write for descriptive bulletin today, or send cash, check, or money order, for quick delivery. We pay freight on six or more windows. Satisfaction guaranteed or money back.

$6.50* each
Redwood 24/24 Glass—others, slightly higher
DEALERS: A few choice areas are still available

BUCKEYE SCREEN & WEATHERSTRIP CO.
1378 S. 22nd Street, Columbus, Ohio

Fishermen! BOTH FREE!

Colorful NEW 1953 *Shakespeare* Tackle Book and Fishing Calendar

WANT TO CATCH MORE FISH . . . BE A BETTER FISHERMAN? Four experts show you how to select right rod, reel, line and bait.

★ **Like to Bait Cast?** Champion Ben Hardesty says, "Make Mine Bait Casting For Big Fish!"
★ **Interested in Spinning?** Henry Shakespeare answers your questions.
★ **Like to Fly Fish?** "Gadabout" Gaddis tells why it's the best way to fish anytime, anywhere.
★ **Vacationing South?** Bob Grant tells you what tackle to use and why.
★ **Joe Godfrey's Famous Fishing Calendar.** Shows best days to fish in '53! Mail coupon!

Shakespeare
WONDERODS • REELS • LINES • BAITS

Shakespeare Company
Dept. PS-1, Kalamazoo 2, Mich.
Please send me your FREE 1953 Tackle Book and Pocket Fishing Calendar.
Name_____
Address_____
City_____ State_____

ELECTRICITY *Anywhere*

FOR PORTABLE, EMERGENCY OR HOME USE

ONAN Electric Plants generate 110-volt, 60-cycle current for homes, farms, cabins and resorts beyond the highline. Lightweight, portable plants cut costs, speed work for contractors. Standby plants protect hospitals, homes, civil defense units against power failure. 400 to 55,000 watts. Gasoline or Diesel-powered. Priced from $219.00.

WRITE FOR CATALOG

D. W. ONAN & SONS INC.
6747 UNIV. AVE., S. E., MINNEAPOLIS 14, MINNESOTA

JOIN THE FUN—SAVE 50%

PACKAGED BOAT KITS

EASY TO ASSEMBLE

OUTBOARD CRUISERS from $349.50

SEA-GOING SERIES from $168.50

OUTBOARD RACERS from $119.95

▶ World's finest, most complete line of real performance boat kits! 27 exciting new models: Dinghies, Skiffs, Pontoon Racers, sleek Runabouts, roomy Outboards, Cruisers. Tops in design, styling, construction. Exclusive features for easier, more rapid assembly. Philippine Mahogany pre-assembled frames, brass screws. Easy to follow instructions.

▶ SEND 25¢ FOR 28 PAGE CATALOG. All 27 models fully illustrated including specifications, performance data plus complete line of marine hardware and paints.

BOAT PLANS AND FULL-SIZE PATTERNS

Over 100 Modern plans and full size patterns. Racing classes, cruisers, inboards, outboards, sail boats. By famous designers. 6' to 30'. DESIGN CATALOG only 35¢. For Design Catalog plus boat building handbook send $1.00.

CUSTOM-CRAFT (DEPT. B) BUFFALO 7, N. Y.

CAR HARD TO START?

Get EASY STARTING ... Smoother Engine Performance ... Save Gas! with SENSATIONAL NEW SISSON Electrimatic CHOKE

Positive, dependable *electric choking* gives *quick, easy starts* every time in any weather. Smoother warm-up ... no stalling ...no flooding...no seasonal adjustment! Fits any car equipped for automatic choking. $5 complete.

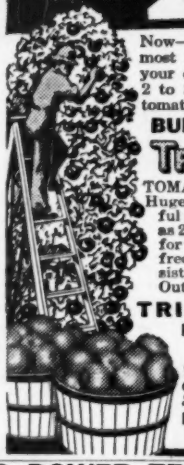
INSTALL IT YOURSELF Get FREE Illustrated Folder

Sisson Choke, 1654 Ohio Avenue
Anderson, Indiana

☐ Please send me FREE illustrated Electrimatic folder
☐ I enclose $5 (check or money order) for one Choke
☐ Ship C. O. D.—I will pay postage

Car Make_____ Year_____ Cyl._____
Carburetor Make_____
Name_____
Address_____
City_____ Zone____ State_____

MIRACLE TOMATO Yields 2 BUSHELS To a Vine



Now—You can grow the world's most amazing Tomato right in your own garden and get from 2 to 3 bushels of delicious, ripe tomatoes from every vine.

BURGESS CLIMBING TRIP-L-CROP TOMATO grows 16 to 20 feet high. Huge, meaty, solid fruit, wonderful flavor. Some weigh as much as 2 pounds each. Unsurpassed for canning and slicing. Blight free—drought and disease-resistant. Grows in any garden Outyields all other varieties.

TRIAL PACKET 10c Postpaid. Order Today
3 Packets for 25c

Write for FREE complete Catalog listing many unusual Seeds Plants and Bulbs.

BURGESS SEED & PLANT CO.
107 B. Galesburg, Mich.

60 POWER TELESCOPE $3.95

VARIABLE EYEPIECE 20 x 40 x 60—BRASS BOUND

NEW! Three telescopes in one. 3 different magnifications. 20 power for ultra-bright images with 40 and 60 power for extra long range. Guaranteed to bring distant objects, people, sports events, ships, moon, stars, etc. 60 times as close. Most powerful for anywhere near the money. 5 Sections. Closes to 1 ft. long. Contains 4 ground and polished lenses. Also used as a powerful compound microscope. Directions included. Mass production enables us to offer this instrument at amazing price of $3.95. Nothing Else to Buy. We pay postage. Get yours now.

CRITERION CO. Dept. PSB-8 — 331 Church St. Hartford 3, Conn.

Sport-Fun-Thrills!

Swing into the saddle of a powerful Harley-Davidson motorcycle — for a thrilling, action-packed ride. See your dealer, or send 25 cents for literature and copy of Enthusiast Magazine.

HARLEY-DAVIDSON MOTOR CO.
Dept. PS, Milwaukee 1, Wis.

HARLEY-DAVIDSON

When winter winds begin to blow
And the air is filled with rain or snow
Streets are slippery, visibility is low

NIGHT DRIVING MADE SAFE

LUMA-RIM, the brilliant reflective wheel trim, puts drivers of oncoming cars ON THE ALERT, when *your* car is crossing street or pulling away from curb at night. Precision die-cut ring of the finest reflective material, easy to cement to flat portion of wheel rim near tire. Will retain its bright red glow for years. (Road tested.) Reflects light from any angle. Best insurance for night driving. Nationally advertised product that FILLS A NEED by providing a distinctive light for the sides of cars. Made for 15" and 16" rims. Order by tire size. Complete set for four wheels, postpaid..... $2.95

© L-R Corp. 1952

LUMA-RIM CORP., Pacific Bldg., Dept. E, OAKLAND 12, CALIF.

Texaco Tips

on car care

How to get longer battery life

Corrosion and insufficient fluid are two of the most common causes of battery failure. So, for longer trouble-free battery life, see your Texaco Dealer. He will check the fluid level — add water whenever necessary. He will remove all terminal corrosion and test your battery for any weak cells—recharging it if necessary.

How to get that "cushiony" ride

This "stretch test" shows why *Marfak* protects your car's chassis longer. An ordinary grease would fall apart. But *Marfak* is extra-tough! It stretches without falling apart! That means it resists jar-out, wash-out and squeeze-out. And for you, *Marfak's* tough protection means *cushiony* smooth motoring — for 1,000 miles or more! Get *Marfak* lubrication today. See your Texaco Dealer, *the best friend your car ever had.*

THAT "CUSHIONY" FEELING LASTS LONGER WITH MARFAK Lubrication

THE TEXAS COMPANY

TEXACO DEALERS IN ALL 48 STATES

Texaco Products are also distributed in Canada and in Latin America

TUNE IN: Tuesday nights on television, the TEXACO STAR THEATER starring MILTON BERLE . . . METROPOLITAN OPERA radio broadcasts on Saturday afternoons. See newspaper for time and station.

Take it EASY...

SMOKE P.A.

_MILD, TASTY all the way

EASY on your TONGUE!

Prince Albert is specially treated by the patented* "No-Bite" process to insure against tongue bite!

EASY to DRAW!

Crimp cut Prince Albert packs just right in your pipe. Smokes cool, mild and mellow!

EASY on your POCKET-BOOK!

Prince Albert gives you more choice tobacco in every pocket tin. More smoking pleasure for your money!

EASY TO ROLL!

You can't beat Prince Albert for a "makin's" cigarette! Rolls easy . . . stays put . . . doesn't dribble out the ends!

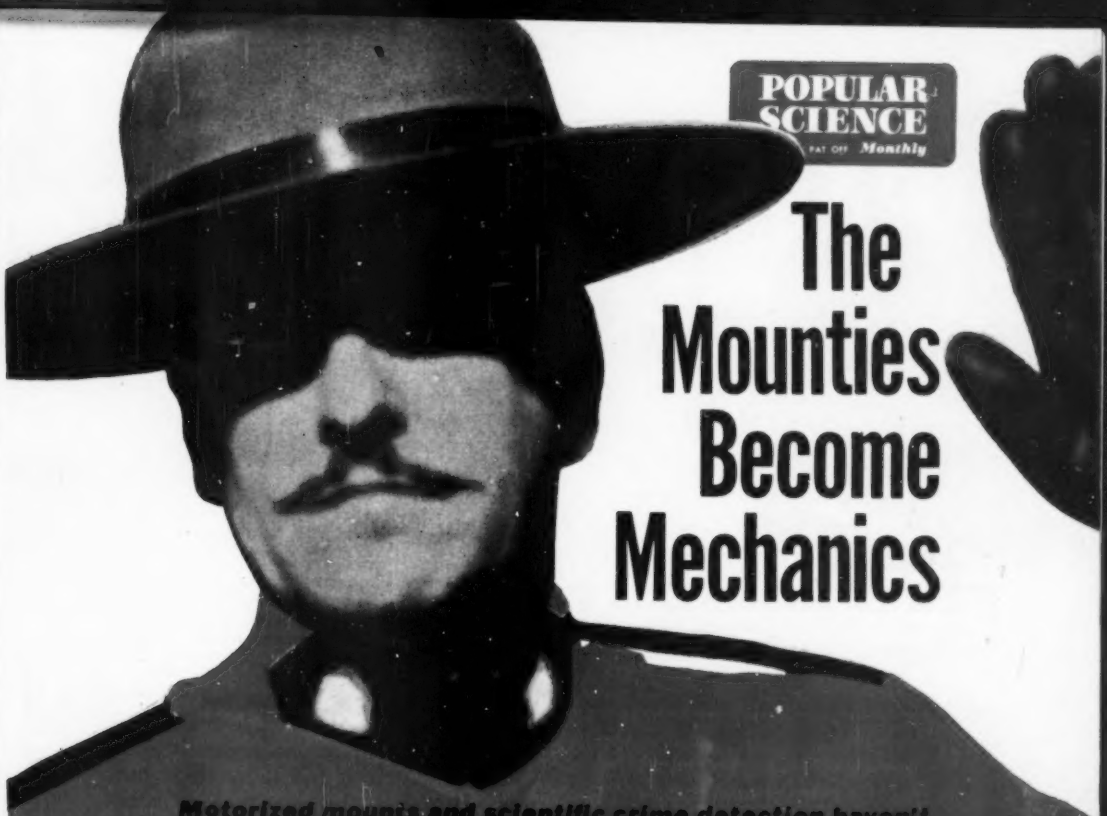
*Process Patented July 30, 1907

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

PRINCE ALBERT

America's largest-selling smoking tobacco!

POPULAR SCIENCE
PAT. OFF. Monthly



The Mounties Become Mechanics

Motorized mounts and scientific crime detection haven't robbed the Royal Canadian Mounted Police of adventure.

By Richard L. Neuberger

AT THE remote end of a British Columbia fiord the body of a salmon fisherman of the Tshimshean Indian tribe has been found, a bullet hole between his eyes. The dead man's gill nets slosh beside him in the cold green tide.

From Port Alberni, on wooded Vancouver Island, a sleek 80-foot motor launch puts out through the heaving waters of the North Pacific. The throbbing of its Diesels caroms back from the steep shoreline. Aboard are three young men in greasy coveralls. They travel by darkness and by light to reach the scene of the murder.

Into a distinctive footprint they pour plaster to get a mold of the mark left behind by a possible suspect. One of them takes photographs of the Indian's body with a new Speed Graphic. He examines a hair in the cuff of the mackinaw worn by the murdered man and preserves it between glass slides.

From a splintered log on the beach another of the launch's crew pries a dented bullet and peers at it through a lens. He scribbles in a notebook that the bullet probably is of .303 caliber. Then he packs the missile in cotton.

Mounties Are Streamlined Now

These youthful navigators who ride in trim launches, and send their evidence to crime-detection laboratories are members of a law-enforcement organization that is associated in the public mind with sled dogs, prancing stallions and rustic log cabins. They are members of the legendary Royal Canadian Mounted Police.

The Mounties of 1953 are streamlined.

MOTORIZED STEEDS are now the mounts of the Mounties. Here a constable radiophones his headquarters at Swift Current, Sask., while his companion checks a driver's license.

MOUNTIES use almost every means of transportation—including 50 motorcycles. These are seen mostly in Nova Scotia and Ontario. Trooper above patrols roads near Toronto.

mechanized, motorized and fitted with wings, radar and spectrographs. They now have fewer horses—exactly 143 a few weeks ago—than the New York City police department.

The Mountie of old had to know how to break a snarling malemute to the harness, how to bed down 14 evil-tempered dogs on an arctic plain with the aurora borealis crackling overhead. If he traveled the prairie, he had to know how to curry his horse and keep it off glare ice where a fall would mean a broken leg. Now, the first thing an RCMP recruit must learn to do is drive a car.

"Once we needed stablemen, dogmushers, veterinarians and cowboys," Inspector Edward H. Stevenson, six-foot four-inch police officer in charge of training for the force in British Columbia, told me recently. "Today our requirements run more to mechanics, radio operators, airplane pilots."

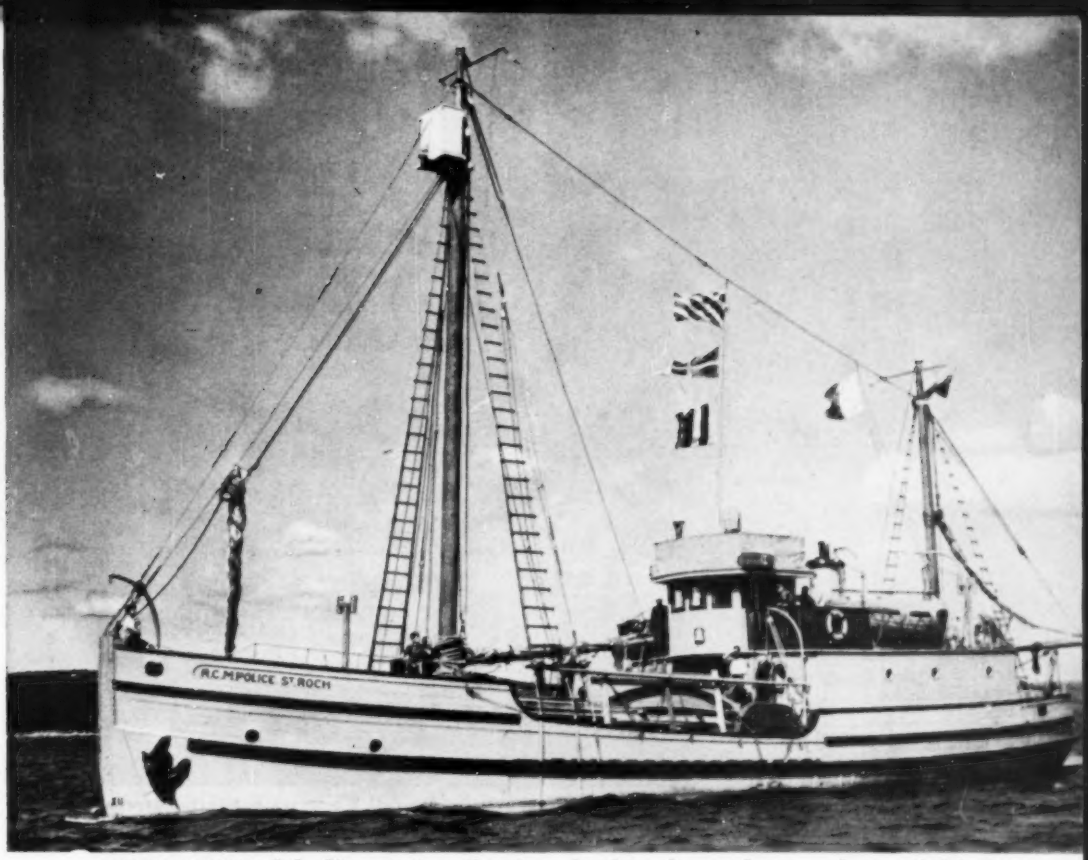
On the Alaska Highway the careless motorist may be halted by a warning siren. Behind him is a black-and-white patrol car. Blinker lights surmount the roof. A radiotelephone is on the dashboard. A tall constable strolls over and asks in even tones, "May I see your driver's license, please?"

He wears a tunic of chocolate brown, not the vivid scarlet which is reserved for ceremonial occasions or tourist meccas. From each of the shiny brass buttons fastening the constable's jacket stares a buffalo head wreathed with the motto of the force. This is not, as the movies would have it, "Don't come back until you get your man," but the more dignified and impressive French, *Maintiens le droit*—"Uphold the right."

Upholding the Right

This is exactly what 4,341 Mounties try to do among 14,200,000 people scattered over a greater land area than the United States. The Aviation Section of the force, staffed principally by ex-Royal Canadian Air Force combat fliers, uses a dozen planes to soar into the remote bush, and the Marine Division is a small navy in itself. It has 86 craft and 212 men. Some of the boats are mere outboard skiffs, but others are 112-foot cutters and 162-foot converted minesweepers.

The Mounties also work unobtrusively. John Leopold, born in Bohemia, enlisted with visions of glamorous northern patrols. But as he had a European accent, he was sent instead to join the Commu-



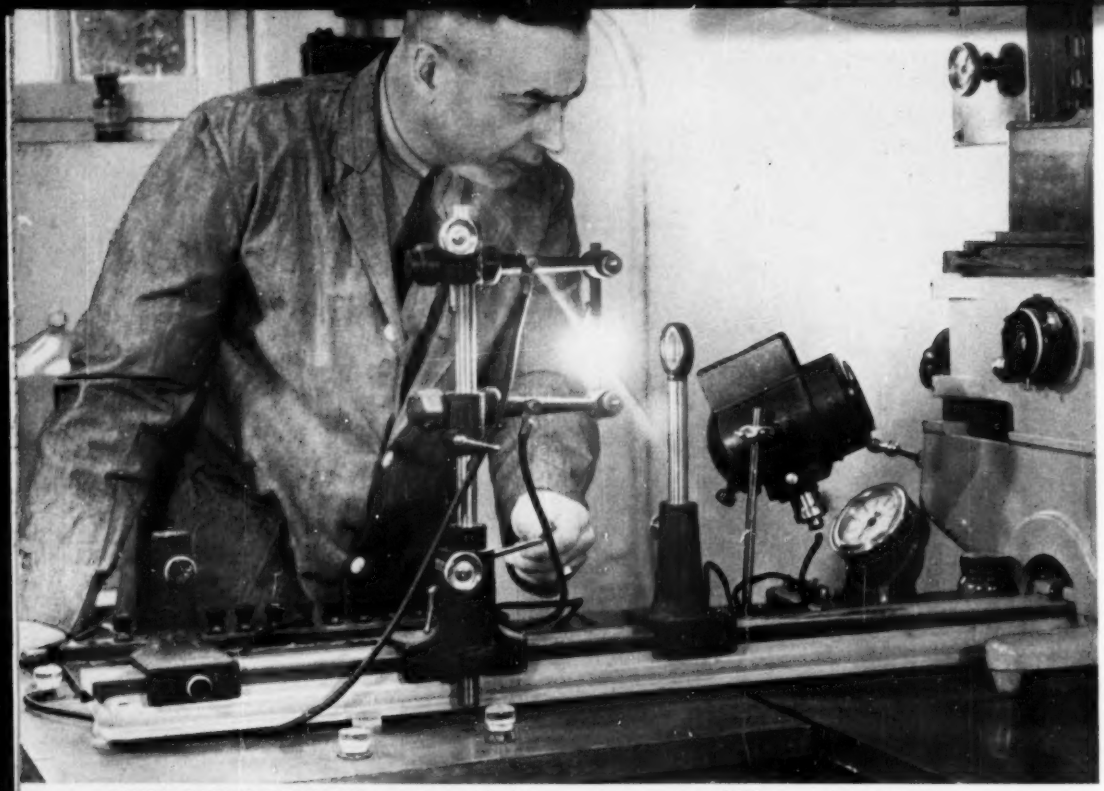
PROUD MEMBER of the Mountie "navy" is the 80-ton, Diesel-powered *St. Roch*. It is said to be the only vessel ever to have sailed both ways through the famous Northwest Passage.

nist party in Canada as an itinerant house painter. He worked his way into the high command of the party and helped to break up a Soviet spy ring in Ottawa.

A Mountie need not have been born under the Union Jack but he must be a British or Canadian subject. When he enlists he should be between 18 and 30 years of age, at least five feet eight inches tall, weigh between 165 and 210 pounds, and have gone through the eighth grade in school.

Six months of training is required to produce a Mountie. Only three out of every 28 applicants are finally sworn in as constables, the lowest rank in the force. Boxing, wrestling, jujitsu—these are some of the physical routines. But the recruit also must learn to punch a typewriter at the rate of 30 words a minute or better. "We want no chicken-track

THE MOUNTED POLICE are sky-riders, too. The Aviation Section, staffed mostly by former combat fliers, keeps an eagle eye on the vast northern wilderness of lakes, frozen wastes.



SCIENCE IN CRIME DETECTION is routine with the Mounties. Above, a constable at Regina laboratory, serving all Western Canada, uses spectrograph to study a piece of evidence.

reports on important cases coming out of the North," says Inspector Stevenson.

As a matter of discipline and morale, a Mountie learns to handle a horse expertly. As a matter of necessity, he is taught how to repair, maintain and operate a car, because the force uses 1,219 motor vehicles.

Mountie Must Learn Many Skills

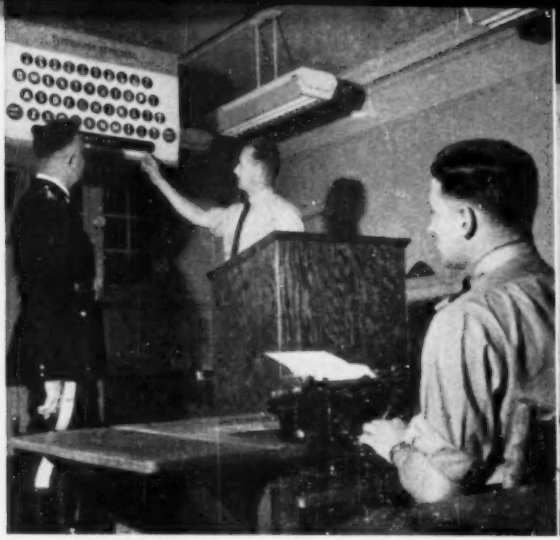
The Mountie of 1953 must be familiar with physics and chemistry, and these scientific realities he encounters in the crime laboratories at Regina and Rockcliffe, which rival the labs of the FBI, Scotland Yard and the Sureté.

He learns how to record fingerprints and how to read them. He is taught how to operate a camera. He masters ballistics and he finds out about toxicology.

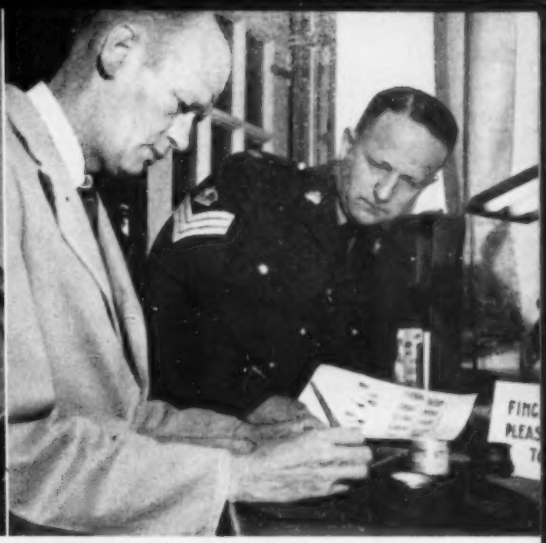
Why this rigorous schooling? I once asked the question of Stuart Taylor Wood, who retired not long ago as the top-ranking Mountie of them all, holding the title of Commissioner.

"Being a member of the RCMP is more than being an ordinary policeman," replied Commissioner Wood. "The Mounted Police have many detachments where only one man is stationed. He may be hundreds of miles from another post. He must have innumerable skills. He may have to be doctor and nurse one moment, a cook the next and magistrate still later. And he must have a sense of tradition and history. That is why he never wears a red tunic until graduation day. He may not wear it very often again, but it has for him rich significance."

Wood's successor as boss Mountie is 48-year-old Leonard N. Nicholson, a compact, graying man and a crack rifle shot. Commissioner Nicholson's annual salary is $15,000. An inspector gets $6,000 a year, a staff sergeant $3,900, a sergeant $3,600, a corporal $3,300 and a



RECRUITS learn to become typewriter jockeys at Fairmont Barracks, Vancouver. The ability to make clear reports in the field is an important part of every Mountie's job.



FINGERPRINTS taken at the scene of a crime in the distant wilderness and later identified in a Mountie crime lab have brought more than one lawbreaker to the end of his trail.

beginning constable $2,520. Living allowances also are provided and a member of the force may retire with a pension at the end of 20 years of service.

They Often Work Alone

Aptitude tests are given to all who enlist in the Mounted. Since this famous force rarely sends two troopers to do one trooper's job, Mounties frequently are on their own. This calls for quick thinking if the right is to be upheld.

In the western ranges a trapper was murdered. His furs were gone. The trapper had cured his skins in a certain fashion. Sooner or later those skins had to show up somewhere. A Mountie pinpointed the most obscure trading post in the area. The trapper's murderer, he felt, would be more likely to trek there than to a more conspicuous post.

Trap for a Murderer

When at last the pelts of the slain man were turned in, the factor flashed a warning glance to the logger in corduroys who whittled by the stove. Soon the slayer heard the ominous words of the criminal code: "I arrest you in the name of the King and warn you that anything you say may be taken down in writing and used against you in court."

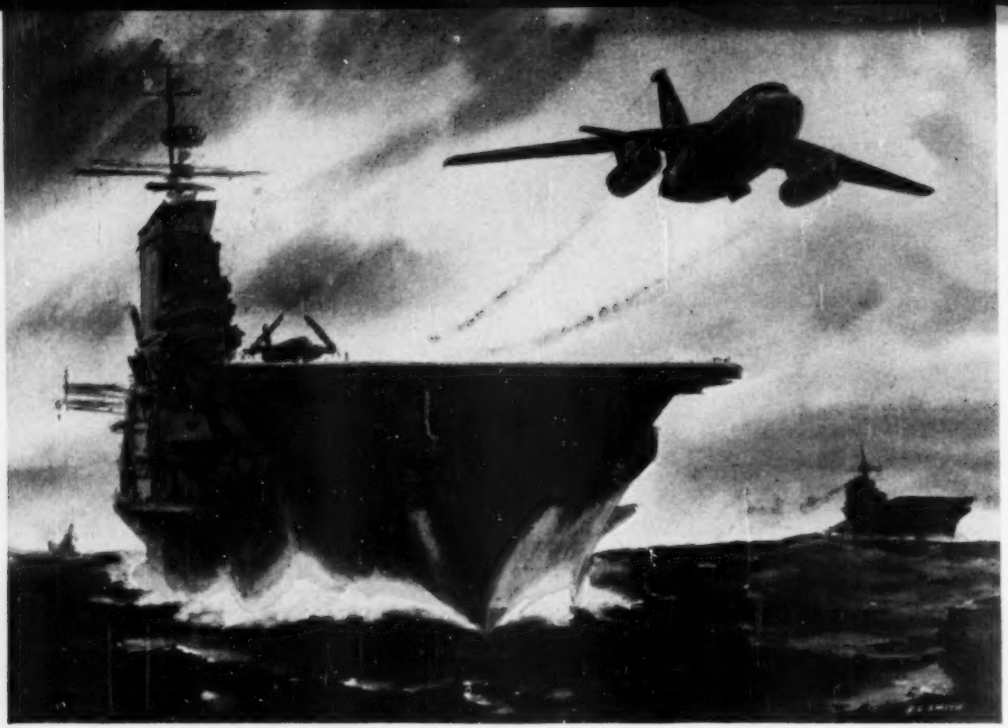
A prospective Mountie must be single when he enlists and he cannot marry for at least five years afterward. Even then, he may not take a bride without the permission of his commanding officer. I asked Assistant Commissioner C. E. Rivett-Carnac, who commands the 777 Mounties on duty in British Columbia, the justification for this rule.

Single Man Can Go Anywhere

"Our force has to have real mobility," he replied. "This is particularly important in the North. A young man who is single can go anywhere. He can live in a tent, a shanty, an igloo or a Quonset hut. Furthermore, a young man who is single often can be free of the responsibilities which might restrain a married man from undertaking a long and perilous mission."

But once a Mountie has served his five-year hitch and gets married, his wife may go with him, no matter how remote the outpost. Many of the most isolated detachments consist of a house divided equally between living quarters and a police office. When the Mountie is away on patrol, the wife may operate the radio which maintains contact with a distant headquarters. In the Alberta bush north of Edmonton I met a statuesque

[*Continued on page 262*]



Balloon-Launched Rockets Measure

ALTHOUGH cosmic rays can penetrate 18 inches of solid lead, you can't always check theories about them inside a cozy laboratory. Scientists went to the opposite extreme recently—wind-swept, iceberg-strewn Baffin Bay in the Far North.

From the rolling deck of the Coast Guard icebreaker *Eastwind*, they launched their measuring instruments in rockets that hitch-hiked part of their rides on gigantic plastic balloons. Fired at the peak of the balloon travel, the rockets reached altitudes of 40 miles. There was no need to recover the instruments, since all data was radioed from the rockets back to the *Eastwind*, where it was recorded and analyzed.

The frigid location of the expedition was chosen because it is near the earth's geomagnetic pole, where cosmic rays are least affected by earth magnetism. Measurements made at high altitudes there most closely indicate the condition of the strange cosmic rays as they exist in outer space. The expedition was part of a program of cosmic-radiation investigations being carried out jointly by the Office of Naval Research and the Atomic Energy Commission.

New Navy Jet Has Top Striking Power

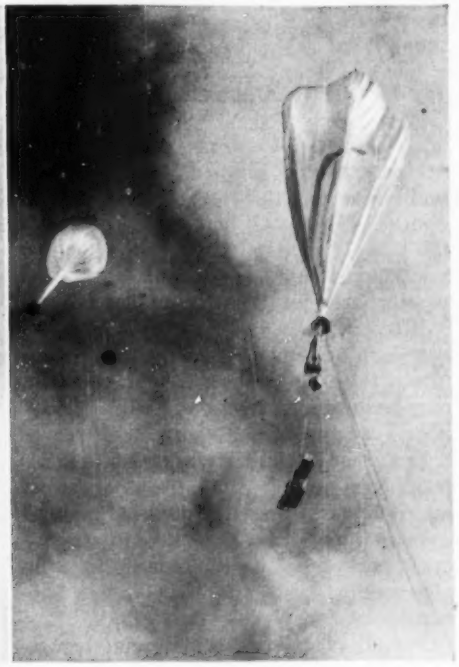
THE hottest carrier plane ever built is the Navy's new Douglas A3D pictured in the painting at left, just recently flight-tested for the first time. Designed to fly faster and farther than any previous type, the swept-wing, twin-jet attack-bomber will carry the largest carrier-launched bombs and torpedoes—and that presumably means the A-bomb—to strike at far-flung enemy installations.

Although it is the Navy's largest bomber, the jet is small and light in relation to its striking power. As a combat plane, it is in the 600- to 700-m.p.h. class, with a ceiling above 40,000 feet. It will also be used as a mine layer and for photo reconnaissance. A pilot, pilot-bombardier, and gunner-navigator make up its crew. Both wing and tail fold for storage aboard carriers.

Tired Enough for an Accident?

How much work can you do before fatigue lines you up for an accident? In its safety campaign, du Pont built this stationary bicycle to find out. An electrically loaded wheel supplies the work, while wires carry indications of blood pressure and pulse to technicians in another room.

Cosmic Rays 40 Miles Over Arctic



Radio Adds Third Dimension

Broadcasting's greatest stride since frequency modulation puts musicians to left and right of you, in true perspective.

By Henry B. Comstock

A NEW type of radio broadcast, so realistic that you will know just which end of the sofa to dive under when Poncho lets blaze with his Colt .45, is ready for you. It will be on the air whenever you and a hundred million other dial twisters ask for it.

Fifty-six years ago, gramophone-cylinder cartons carried the slogan: "Absolutely faithful to the original." So you may be pardoned if you now dismiss such boasts as meaningless surface noise.

But great strides have been made in reproducing sound—with super-sensitive microphones, frequency modulation, and speaker units which can talk in the 30-cycle-per-second fundamentals of the pipe organ, or in the 15,000-cycle harmonics of the piccolo or violin.

Yet all of today's commercial broadcasting still shares a basic defect of Edison's first talking machine. It lacks the three-dimensional quality of live sound, or what the engineers call audio perspective.

"Never heard of it," says the average listener, "so how do I know what I'm missing?"

Try this experiment. Close your eyes and press a hand tightly over one ear. Then locate, if you can, the source of some sound in your living room, or out on the street. Let's assume that this sound conveys a sensation of movement. An increase or decrease in volume tells you that. But can you say, with certainty, that it is moving from left to right, or vice versa?

The chances are that you cannot. This proves, according to the experts, that you were given two ears, not to double your hearing, but to serve as a highly

sensitive sound hookup. Your two-source, or binaural, hearing helps you to duck taxicabs behind you. And it is also essential to your full enjoyment of sound. Without it, you would never thrill to the directional richness of a circus band as it swings out of Dugan's Alley onto Main Street.

Yet the most perfectly designed radio sets, and all of the costly equipment used to channel programs into them, fail to bring you this enjoyment. Sound engineers spot their mechanical ears throughout the studio as carefully as a conductor arranges his musicians. Then they blend the output of these mikes into a tasty stew, which is generally dished out to you in a single bowl—the cone of your loudspeaker.

Now, suppose that instead of pouring the output of a number of mikes into one speaker, the engineers were to set up two mikes, one at either side of a live orchestra, and funnel the separate outputs, one to each of your ears through a headset. That would give you a startling effect of sound perspective. The string section would be properly separated from the brass, soloists would stand out from an instrumental background. There is only one catch. Few listeners want to go back to earphones.

How about substituting two loudspeakers? "Fine," say the audio engineers. "That is, provided you place them at least 10 feet apart, and at equal distances from the listener. Naturally the acoustics of the room will destroy part of the effect of realism which earphones give you, but

YOU NEED two radios—one AM and one FM—to bring present stereophonic broadcasts into your home. Each reproduces the pickup from a separate microphone.

TWELVE-INCH binaural record has two sound tracks, is played with a dual tone arm. Recorder, earphones, speakers and disks are sold by New York's Harvey Radio Co.

not enough to dampen your enthusiasm for a brand-new broadcasting thrill."

In 1933, early champions of stereophonic sound tried out this experiment at the Chicago World's Fair. Using two widely-spaced microphones, they sent out broadcasts of each pickup over separate AM station bands. That broadcast came too soon. In those days few listeners could afford two home radios.

Today, the whole situation has changed. Quite apart from huge radio and television sales, manufacturers of phonographs produced more than 825,000 record players in 1952. That gives you some idea of the market for a sound "extra" which promises good listening.

Revived at Audio Fair

With this in mind, New York City radio station WQXR-WQXRFM recently revived stereophonic broadcast experiments as a special feature of the 1952 Audio Fair. The technique was different this time. Equipped, as its call letters indicate, for both AM and FM broadcasting, the station channeled the output of one microphone into its AM band and the other into FM.

Listener reaction was tremendous. There was only one complaint. Many listeners reported that superior FM reception tended to shade the AM pickup. This raises an interesting possibility for stations broadcasting both FM radio and television, since TV sound is also FM. By adding two balanced FM sound channels to a TV picture, they could bring a whole new world of realism into your parlor.

What about canned broadcasts? Transcriptions have become a dominant factor in the industry. Can they be made stereophonic? The answer is that they can and have been. Stereophonic records were made as long ago as the early Thirties, using a combination of lateral wave and "hill and dale" (vertical) cutting, to produce two separate sound tracks in a single groove.

The system now in commercial use is less complicated. Two grooves are cut in one side of a 12-inch record, one spiraling inward from its outside circumference, and the other from a point midway across the playing surface. In the playback, two heads on a single tone arm pick up the individual recordings and send them to two speakers. The chief selling point of the stereophonic disk is the ease with which any number of duplicates can be pressed.

Available on Tape

Stereophonic tape is also available. While it does not lend itself to mass-production recording, it provides a simpler system of synchronization. A standard quarter-inch tape, passed over two reproducing heads, receives two parallel recordings, and the playbacks are carried to separate speakers, or into the individual earpieces of a headset. Two manufacturers are now offering such equipment, and both describe it as binaural. If you are a stickler for accuracy, you may object to that definition when it is applied to loudspeaker reception. Technically, stereophonic sound is binaural only when you hear it through a headset.

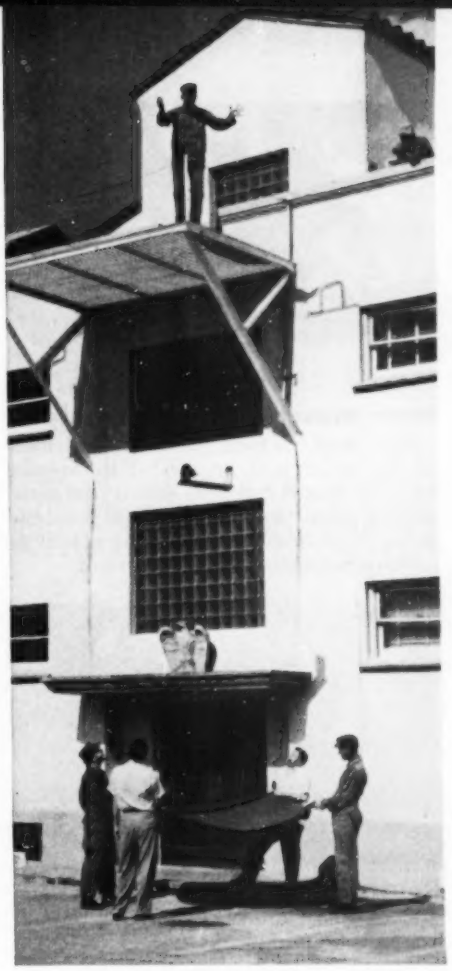
But whether you call it binaural, stereophonic, three-dimensional or audio perspective, this new medium of sound reproduction is now yours for the asking. Whether or not it will become a part of your daily radio diet depends upon how long you are satisfied to hear studio broadcasts through a keyhole which only lets you use one ear. END

They Use Bubbles to Prepare for Flight into Space

PHYSICISTS will tell you that any freely falling object has no weight. But they do not recommend jumping off a building to prove it. A safer demonstration has been figured out by Dr. Fritz Haber, space-flight expert at the Air Force School of Aviation Medicine, Randolph Field, Tex. He does it with movies.

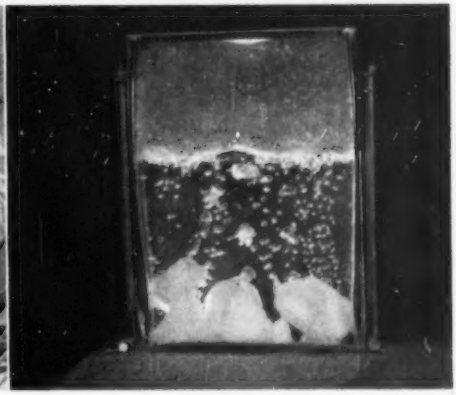
The photos on this page show how. His main prop was a bottle of plain water containing dry ice in the bottom to make bubbles. This was fastened to one end of a board with a movie camera attached at the other end. The whole thing, with the camera running, was then dropped from a platform near the roof of a building (photo at right). During the second or so while the bottle was in the air, the bubbles, instead of rising, were suspended in the water. That proves they had no weight, and neither did the water or the bottle.

Reason for the studies is that similar weightlessness is experienced momentarily by pilots of high-speed jet planes under certain conditions. And future space travelers will have to go through long periods without weight (PSM, Dec. '52, p. 88).



BUBBLE-BOTTLE and movie-camera gadget to show weightlessness of falling objects was rigged up by Lt. Arthur P. Thiesen, photo officer at the School of Aviation Medicine.

WEIGHTLESS BUBBLES, suspended in the water, are caught by camera (below). Because this is a still photo, you can't tell whether the bubbles are suspended, but movie proves it.

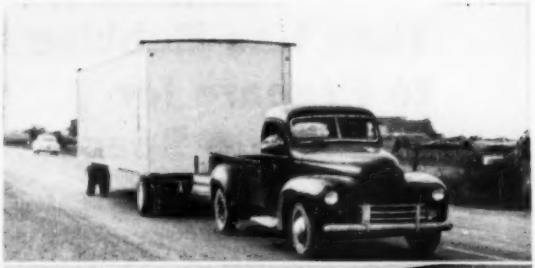


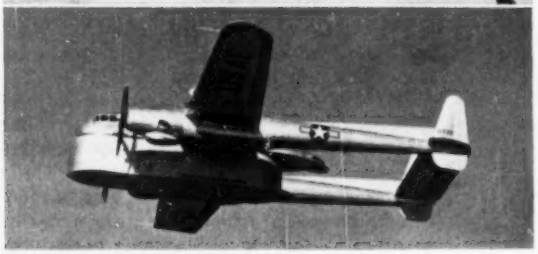
More Muscles for New Tractor

THIS new '53 Ford tractor works harder as the going gets tougher. Extra power from its four-cylinder engine is automatically supplied as needed by a hydraulic transmission to either the driving wheels or an implement attached to the tractor.

Control Cuts Record Scratch

HOOKED to a phonograph, this control lets you hear an early Caruso recording without listening to a lot of surface noise. It compensates for scratched and worn surfaces on old or modern disks. The unit connects between the pickup cartridge and the phonograph preamplifier. It has a control to vary the amount of compensation and will work on all records. GE makes it for use with its pickup cartridge.





Hitches Plane Ride

THE long-haul trailer at top above can hitch a ride and go by air. It nestles into an XC-120 Pack Plane as shown in the bottom photo. On the road, front and rear doors are folded flat; for flight, the doors are opened and locked in a modified V shape to cut air resistance. After the cargo pod is attached, its wheels and tow bar can be removed and stowed inside the trailer. Both cargo pod and plane were designed by Fairchild.

They Say Now.....

"It is not unreasonable to imagine that our life span may be doubled or tripled."—JEAN ROSTAND, FRENCH BIOLOGIST.

"The curve of discovery has been rising for centuries and there is no sign of any flattening out or decline."—MAX COSYNS, PHYSICIST, FREE UNIVERSITY OF BRUSSELS.

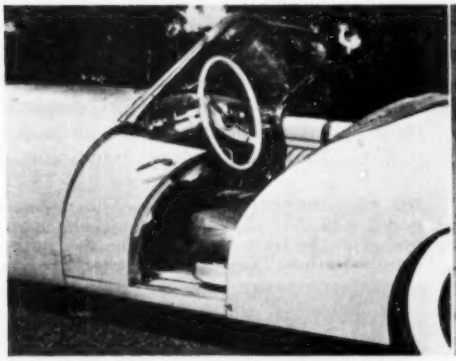
"I sincerely believe that we are still near the dawn of our technical development."—L. B. BELLAMY, PRESIDENT, AMERICAN SOCIETY OF TOOL ENGINEERS.

Kaiser Plans Plastic-Body Henry J

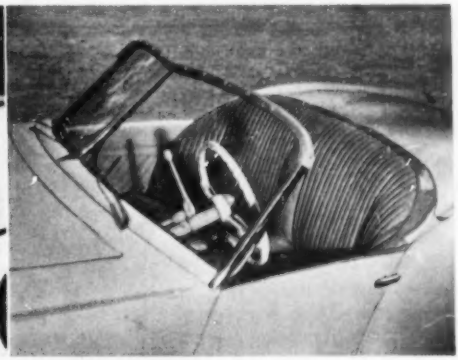
THE first plastic-body automobile to be produced in any quantity—a two-seater Henry J sports car styled by Howard Darrin of Hollywood—will make its appearance this year. Kaiser-Frazer plans to make 1,000. Price? Guesses range from $2,500 up.

The use of plastic, reinforced by Fiberglas, reduces the body weight 300 pounds under that of a metal car. There are two luggage compartments, one under the hood. Both hood and trunk are opened by knobs on the dash. The convertible top—also push-button controlled—folds neatly into the rear luggage compartment.

RECOGNIZE THIS CAR as a Henry J? New plastic body with glass-fiber reinforcement stands only 34 inches high to top of windshield. Bottom of door is lower than curb height.



SLIDING DOORS are car's outstanding feature. Touch a button and an electric motor pulls door forward inside front fender panel. Motor does double duty—it raises, lowers windows.



SEAT IS TRIMMED to match or contrast with paint job to suit customer. Curved two-piece windshield extends back to door line. A six-cylinder, 65-hp. engine powers the car.

WILBUR SHAW REPORTS FROM THE DRIVER'S SEAT:

Lincoln Forges Ahead in Horsepower Race

Its whopping-big 205 horsepower, squeezed out of the same basic engine, now make this the hottest mass-produced car in the world.

I'VE just driven the world's most powerful high-production automobile. It has 205 horsepower, a take-off that will scare the pants off you, and a reserve of sass even at 75 miles an hour that will overtake anything else on the road.

It has averaged almost 115 miles an hour for 100 miles of steady running. It will accelerate from a standing start to 60 in 12 seconds. It will top 80 in 22 seconds. That's the 1953 Lincoln.

It's no wonder Lincolns were first, second, third and fourth in the stock-car division of the Mexican Road Race—a tremendous tribute to their power and handleability.

And there's a lot more. It has all the new doodads being put on the luxury cars—including power steering and power brakes. It has an optional trick seat that goes up and down and back and forth by motors. It has, naturally, an automatic transmission.

Basically, the new Lincoln is only a refined version of last year's car. Even the engine is essentially the same. They've just coaxed more power out of it. How they did it is a story with double interest because one change reflects a squabble among Detroit car manufacturers.

How did they boost horsepower from 160 in 1952 to 205 in 1953—the biggest gain without an increase in displacement in the history of the industry?

Well, that takes some explaining. I

THE ACCELERATION of the new Lincoln compared with that of the '52 was evident a second after the starter dropped the flag in this demonstration. The '53 car is in background.

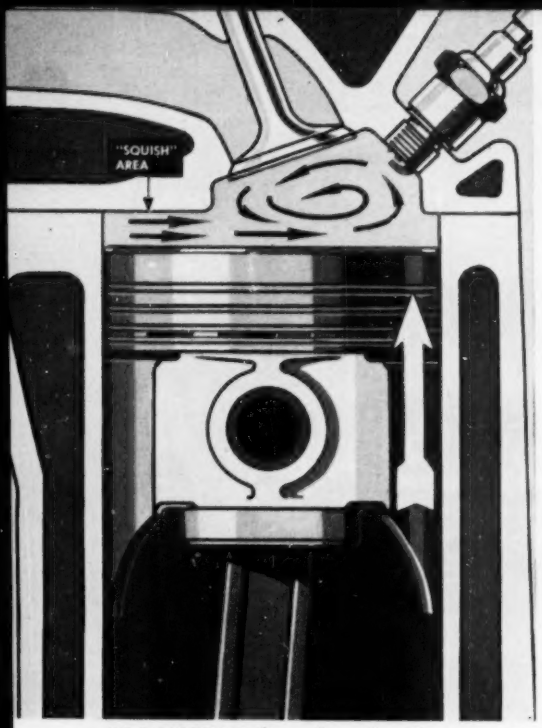
paid a visit to Ford's test track at Dearborn, drove the car, and talked to some of the engineers who wrought the changes. Those changes are subtle, but they add up to performance.

To dramatize that, I got behind the wheel of a new Lincoln idling on a straightaway in the infield. Five feet to my left was a 1952 Lincoln, exactly abreast. A starter dropped a flag. The driver of the other car and I hit our accelerators at the same instant. The accompanying pictures tell the story. If he'd been anchored, I couldn't have left him much faster.

You can sum up the reason for this spectacular performance by saying that

THE OLD LINCOLN had gone exactly 500 feet—or 1½ city blocks—when the new one had pulled 135 feet ahead. Compression ratio has been upped from 7.5 to 8 to 1.

POWER CONTROLS for front seats were inevitable—women go for such things. Two little electric motors in '53 Lincoln move seat 4¼ inches fore and aft, 1½ inches vertically.



THIS DIAGRAM shows how the piston on the compression stroke causes turbulence in the gas-air charge by "squishing" it at jet velocities out of a low-roofed portion of chamber.

Lincoln improved the breathing of its engine. A gasoline engine is a "hot-air engine." It pumps air, like the human lungs. And, like the lungs, it doesn't do so well when its breathing is restricted.

You don't do so well when you've got a cold, do you?

The first thing they did to the new Lincoln was enlarge the intake valve. (It's a lot harder to get a gas-air charge into the cylinders than it is to get the burned gas out.) Last year the valve had a diameter of about 1¾ inches. Now its diameter is almost two inches. Then they increased the distance that the valve is lifted off its seat by the camshaft by about 3/128 inch. That doesn't sound like much, but it's part of the difference between that cold in your head and free breathing.

Engine Winds Up Faster

They replaced their old two-barrel carburetor with one having four barrels—that lets more air get into the intake manifold and the cylinders. They put a linkage on the distributor to advance the spark mechanically as you step on the accelerator from a dead stop.

They changed the rear-axle ratio to let the engine wind up faster—and that makes the engine operate at a more efficient part of its power curve. They engineered in a higher compression ratio—highest in the industry—for additional power and better combustion.

Finally, they changed the shape of the combustion chamber. And right there is where the squabble among the manufacturers occurs.

Engineers are always working to encourage progressive burning of the fuel-

FACTS ON '53 LINCOLN

Model: Lincoln Cosmopolitan Custom 4-door sedan.

Engine: V-8 overhead valve; 205 hp. at 4,000 r.p.m.; compression ratio, 8:1; piston displacement, 317.5 cu. in.; piston travel (in feet per car mile at 20 m.p.h.), 1,379; bore and stroke, 3.8" by 3.5"; crankshaft bearing surface, 43.49 sq. in.; torque, 305 lb.-ft. at 2,000 r.p.m.

Weight: 4,262 lb.; per hp., 20.79 lb.

Transmission: Hydra-Matic; rear-axle ratio, 3.31:1.

Steering ratio: 26.1:1; radius of turning circle, 22.7 ft.

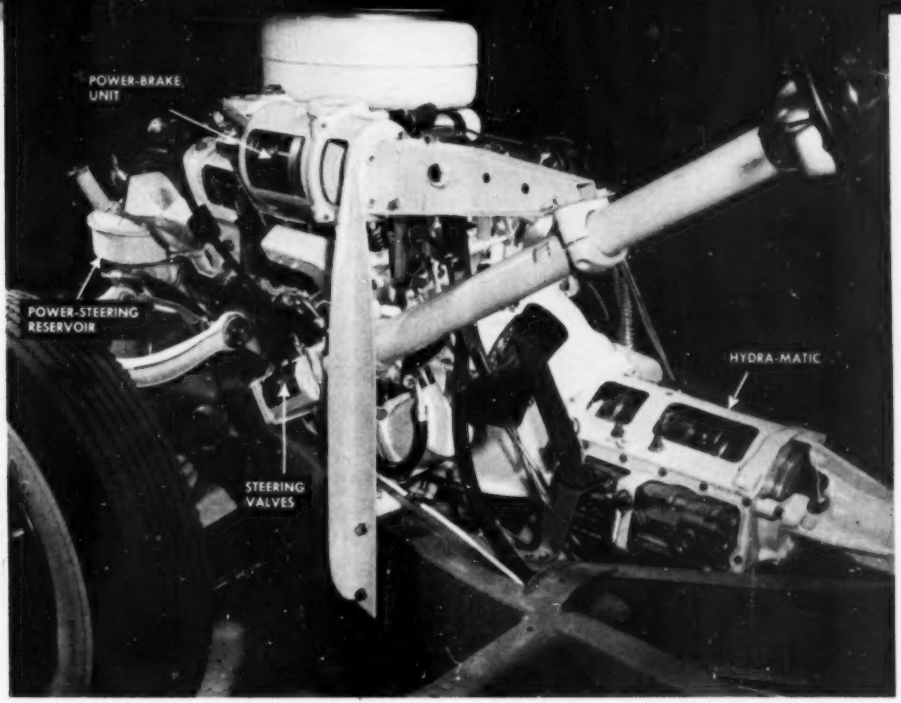
Effective brake-lining area: 202.3 sq. in.

Springs: front, ball-joint individual coil; rear, semi-elliptic.

Outside dimensions: height, 62.7"; overall length, with bumpers and guards, 214.1"; width, 77.5"; wheelbase, 123"; overhang, front 38.3", rear 52.8"; tread, front 58.5", rear 58.5".

Inside dimensions: seat-cushion width, front 62.3", rear 62.1"; leg room, front 44.3", rear 42.8"; headroom, front 35.5", rear 34.7"; seat height, front 13.3", rear 12.5"; vertical distance, steering wheel to seat cushion, with seat in rear-position, 4.9"; front-seat adjustment, horizontal 4¼", vertical 1½".

Tire size: 8.00 by 15 super balloon.



HERE'S THE NEW CHASSIS. The power steering reduces the steering-wheel pull in parking from 42 to seven pounds. Power braking requires about a third less pedal pressure.

air charge in automobile cylinders. You can't get the power out of your gasoline unless the charge burns progressively or gradually, like a piece of wood in a fireplace. The only difference between a charge in a cylinder and the firewood is the time it takes for combustion.

Auto Makers Disagree

If the gas-air charge doesn't burn as it should, you get detonation or "ping." That means the charge ignites in more than one place. The spark plug starts it burning, and then perhaps compression or radiant heat resulting from the initial combustion, or the combination of both, causes the rest of the charge to ignite prematurely. That sets up pressure patterns fighting each other in the cylinder head.

Result: ping. Result: loss of power.

You'll remember that when Chrysler brought out its hemispherical combustion chamber (PSM, Mar. '51, p. 134)—now in the DeSoto and Dodge, too—the reason given was to improve the combustion.

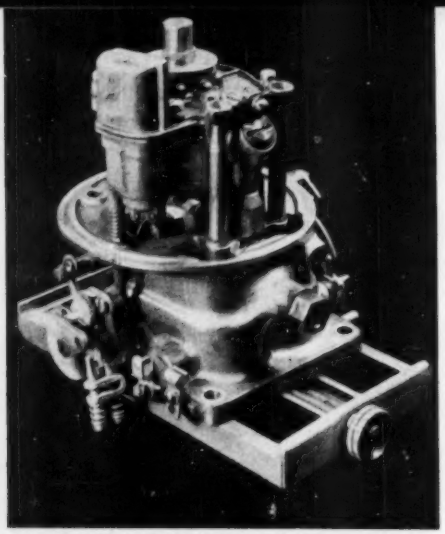
Chrysler put its spark plug at the apex of the hemisphere so that the flame would spread from it like a wave when a pebble is dropped into a pool of water.

The Ford Motor Co. and General Motors, among others, don't agree with this attack on the ping problem. They contend that for best combustion at both high and low speeds, the shape of the combustion chamber is important mostly to create a tornado. The shape sets up a whirling movement in the gas-air charge just before ignition.

Gas and Air Must Thoroughly Mix

They argue that a smooth, hemispherical head "stratifies" the charge at low speeds—that the vaporized gas and air, not mixed properly in the carburetor and manifold, tend to lie in layers in the top of the cylinder. That, they say, results in incomplete combustion or, if not that, creates the need for a richer mixture to get good combustion.

So they shape the head to cause high turbulence and mix the gas and air thoroughly. That, say the Ford and GM



FOUR-BARREL CARBURETOR, unlike any other in the industry, has a float bowl that sits on top on stilts. This is to insulate it from engine heat and prevent "vapor-lock stall."

engineers, insures progressive burning at all engine speeds, and that's what the Lincoln people have done.

More Power on Less Fuel

They must have done pretty well—the new engine uses less fuel for each horsepower produced than the old one. Only a pittance of the fresh performance is attributed to the increase in compression.

They've done other things. By opening up obstructions in the exhaust system, they have reduced back pressures in the engine. It "exhales" more easily. They incorporated an adjustable fast idle when this powerful engine is on automatic choke to accommodate winter temperatures in either Florida or Minnesota.

The new Lincoln astonished me. But I've begun to look on these ever higher and higher horsepowers with mixed feelings. Detroit now has a race on. Cadillac started it. Chrysler caught up and passed Cadillac. Lincoln has forged ahead of both. Cars in the lower price ranges are following.

Faster Cars Need Better Drivers

It wouldn't surprise me if Cadillac, still at 190 horsepower as this is written, tops even Lincoln's 205 for '53.

The only real reason for higher horsepowers is performance in the higher speed ranges. The actual horsepower required to propel a 4,000-pound car at 30 miles an hour is ridiculously little—about seven horsepower. Any additional power developed by the engine at that speed is consumed by its own friction.

I like horsepower. I like performance. I like speed in moderation. But I also like safe highways. I suspect that presently Detroit will have to put a limit on these climbing horsepowers.

The only alternative to that is teaching motorists that under their accelerator pedals is something with a dual personality—servant and monster. END

Lincoln's styling is not much changed from last year—but, boy, when you step on the gas!

Most obvious change in '53 Ford is new grille. Other body lines are about same as last year.

Ford Takes Thump Out of Bumps

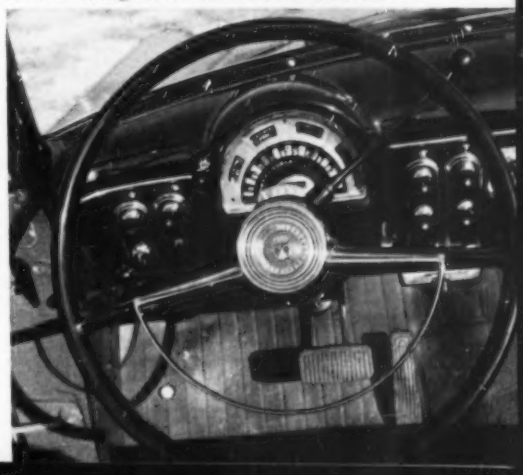
In the 1953 models the brunt of the jolts is taken by the springs and shock absorbers instead of by the body of the car and you.

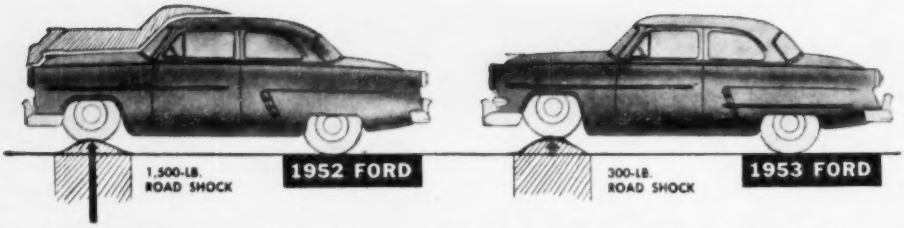
IF SOMEBODY blindfolded you and took you for a ride in a 1953 Ford over a rough road, you would never recognize the car.

The thump and bump when the wheels hit chuck holes are gone. The ride is "flatter," as the engineers say. The springs and shock absorbers take the jolts without transmitting them to the body of the car and the passengers.

Most of the jars that put your teeth on edge in motoring come from "strike through" or "bottoming." For a second, it's just as though you had no springs at all. The road shocks hit the body like

CHANGES IN INSTRUMENT PANEL include easier-to-read needles on speedometer, ammeter, and gas, oil-temperature and pressure gauges. New moldings surround control buttons.





ROAD SHOCK IS REDUCED 80 percent, Ford claims, by changes in springs, shock absorbers and wheel travel. Drawings show how 1,500 pounds of shock transmitted by a bump to frame and body of 1952 car is reduced to only 300 pounds in 1953 models.

sledge hammers. The car hits a bad bump, the springs flex and the rubber strike pads on the suspension bang against the frame.

A number of little alterations make the difference in the new Ford's ride. The amount of up-and-down travel allowed the front wheels before the strike pads hit the frame is doubled. The travel distance for the front and rear wheels is now about the same. More flexible pads absorb more jounce. A different gauge of spring leaf is used on the semi-elliptics in the rear for softness.

MODERNISTIC REAR FENDER is speared by a chrome strip across wheel cutout. Up front, added wheel travel necessitated addition of skid plate to protect engine oil pan.

JET-TYPE TAIL LIGHTS for '53 have projecting centerpiece outlined in chrome (left). The tail light for last year's model is shown on the car at right.

To take care of the added spring softness, the shock absorbers were redesigned. When the springs flex, the shock absorbers snub the movement faster.

In celebration of Ford's half-century of manufacture, the top of the steering column carries a medallion inside a new half-circle horn ring with the words: "50th Anniversary—1903-1953."

"Hooters" Are Eliminated

They have done something else to the new Ford. Last year a car came off the assembly line now and then with an ailment diagnosed technically as resonance. It "hooted." Vibrations started somewhere near the front of the car, created noises and grew in volume as sympathetic vibrations were set up somewhere about midway between the front and rear wheels. The engineering department got a king-size headache looking for the trouble.

One day a research man became aware that when he turned a hard corner in a "hooter" the noise stopped. Hah! He smelled a rat. He filled his oil pan to the brim. That did it. The resonance had been originating in the pan and spreading to the exhaust piping. For '53 there will be no more hooters. The oil pan has been stiffened.—*Devon Francis.*

New Mercury Looks Longer, Performs Better

LIKE its big sister, the Lincoln, the 1953 Mercury has improved its engine performance by modifications in the exhaust system. A straight-through type of muffler and a two-inch tailpipe reduce exhaust back pressures and let the engine "breathe" more easily. New to Detroit is the Mercury's two-position door check—you can open the door either halfway or all the way and it will stay there. Styling changes include new moldings to make the car look longer.

Willys Introduces Hard-Top Convertible for 1953

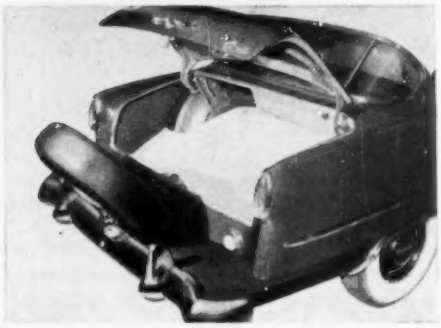
A HARD-TOP "convertible" was added last month to the line of Willys six-cylinder cars for 1953. Called the Aero Eagle, it is powered by the same 90-horsepower F-head engine used in the first Willys sedans produced since the end of the war (PSM, Jan. '52, p. 116).

All Willys models feature more rear-seat legroom. A four-door sedan, the Aero Lark, also will be produced.

Pontiac Adopts New Front Suspension

THE main changes that you can see in the 1953 Pontiac are its one-piece windshield, new grille and chrome treatment. Others include a boost of 16 horsepower in the six, a wheelbase two inches longer, and optional power steering.

A new "curve control" front suspension makes the car handle better on turns and cuts tire wear by reducing the tendency of the front wheels to lean left when directed right and vice versa.



Dodge Borrows from Past to Get Sports-Car Look

ADDED to the 1953 line of Dodge cars (PSM, Nov. '52, p. 123) is the newly announced Diplomat. This model, like others originated by Detroit manufacturers in the last two years, was designed for a sports-car look. The outside spare wheel contributes to the impression. Mounted on a trick locking hinge, it can be tilted back to get at the trunk interior without removal. Wire wheels also are available optionally.

Why Don't We Lick the Common Cold?

We're spending only one-fortieth of a cent per cold to find a way out of our misery—and few scientists are helping us find it.

By Herbert Yahraes

IF COLDS killed us, instead of merely making us wish we were dead, there would probably be a cure for them by now.

Isn't widespread misery enough of a goad to spur medical researchers on to finding a cure? Evidently not.

Colds keep 250,000 workers at home every day of the year, and put thousands more in a class with the walking dead, yet practically nothing is being done

In England You Can Have a Free Vacation If You'll Catch a Cold

1 OFF TO A BAD START, two British volunteers begin a "holiday" paid for by a research clinic. The nose drops contain a cold virus.

2 WAITING FOR SNIFFLES, the girls play chess. Medical staff is masked so as not to get or give colds, which would confuse the tests.

to put an end to them. Colds cost us $400,000,000 a year to treat, yet we are spending only one-fortieth of a cent per cold to discover the cause and stop this huge, unnecessary expenditure.

Colds cost their victims a billion dollars a year in wages and rob us all of four billion dollars' worth of goods and services we might have had if the cold sufferers had been able to keep working.

Doesn't science know anything about what causes colds? Quite a little.

Virus at Work

As long ago as 1914, at least one clue to the mystery was found. That year a German physician, W. H. Kruse, discovered that a filterable virus was at work in a cold victim. He washed out the patient's nose, filtered all identifiable bacteria, and then inserted drops of it in the noses of healthy volunteers. The human guinea pigs came down with colds.

This was evidence that a cold virus existed. If it could be identified and grown in a laboratory, science might learn how to protect people.

Since then, the few scientists interested enough to investigate have found the same thing. They haven't yet been able to identify the virus—or, perhaps, viruses. They don't even agree that the virus is entirely responsible for the cold.

Lack of money doesn't block research on the cause of colds. Dr. Victor H. Haas, of the U. S. Public Health Service, says he doesn't know of a single worthwhile request for research funds that is not being met. Another distinguished doctor declares that "those who wish to do so can always obtain financial grants-in-aid if they are qualified."

It's mostly lack of interest among competent medical sleuths that prevents us from getting rid of colds forever. Colds are drab and unexciting except to people who happen to have them.

Admittedly, though, there are problems involved in cold research. One of the biggest is that the common cold is—well, common. It's easy to trace an outbreak of typhoid fever or smallpox to its source. Trying to track down the origin of a cold is like trying to identify the exact tree from which each fallen leaf on a wind-littered lawn came.

Moreover, what seems to be a cold may be actually a mild attack of influenza, allergic rhinitis, an early stage of measles, chicken pox or polio, the result of inhaling certain fumes or dust, or even a by-product of emotional stress. Many a person catches a "cold" just be-

3 SOUP'S ON, but it must be left outside the girls' door. They have to be completely isolated from outside sources of infection.

4 THE PAYOFF was anticipated, but it's no fun. Now researchers at least know where the cold came from, can study symptoms.

fore he tackles a new job, takes an exam, hits the boss for a raise or has the highfalutin Joneses in for dinner.

The shifty character of the cold is one of the reasons why "cold cures" seem to work. The cures are often taken for conditions that only look like colds. For example, if you have allergic rhinitis, an antihistamine—most ballyhooed "cold cure" in history—probably will do you some good. If you really have a cold, it probably won't.

Man Is the Guinea Pig

A major roadblock is that there isn't any laboratory animal to help scientists in their experiments. You just can't give a cold to a dog, cat, rat, mouse, guinea pig, hamster, rabbit, squirrel, ferret, pig, hedgehog or monkey. You *can* give a cold to a chimpanzee. Dr. A. R. Dochez, of Columbia University's College of Physicians and Surgeons, proved that in the 1930s. But chimpanzees are expensive, strong, and opposed to being experimented on.

That leaves only man, who is a rather poor lab animal. However, the British have tried using him.

Since 1947, healthy English men and women between the ages of 18 and 50 have been offered a 10-day, expense-free vacation in the cathedral town of Salisbury if they would let medical researchers there try to give them a cold. But very few people think a 10-day vacation at somebody else's expense makes up for catching a cold.

However, one of the British researchers, Dr. C. H. Andrewes, has discovered a useful fact. At least one cold virus is so tiny that it will pass through a filter having pores with a diameter of only 57 millionths of a millimeter. This makes it one of the smallest viruses known.

What's more, this little devil, in nasal fluid from some of Doctor Andrewes' cold sufferers, remains potent after being packed in dry ice for months. But when Doctor Andrewes tried to breed the tiny virus, as Doctor Dochez and his fellow researchers had earlier proved could be done in fertile chicken eggs, he ended up with something that would no longer cause colds. Why? Was it a different kind of virus?

U. S. Public Health Service investigat-

BREEDING COLD VIRUSES in a U.S. laboratory begins with inoculating fertile eggs with a solution containing a virus. Often—though, mysteriously, not always—they multiply there.

ors five years ago confirmed the Dochez evidence that at least one cold virus can be cultivated. They even made the exciting discovery that they could tell by a chemical test whether or not the virus was present in a fluid. Then, like Doctor Andrewes, they ran into bafflement. After about a year and a half of breeding this particular virus, the strain apparently ran out. At least it would no longer produce colds. To make matters worse, when other scientists tried to use the chemical test on other strains of the cold virus, the test wouldn't work.

Test Shows Promise

A different test, being tried by Dr. Thomas G. Ward at the Johns Hopkins School of Hygiene and Public Health, shows promise. Using radioactive phosphorus, Doctor Ward has found that chick embryos infected with a cold virus seem to take up more of the tagged stuff than embryos with no virus.

Until there is a foolproof test for a cold virus, lab workers are fumbling in the dark. They can't be sure that they have what they want until they drop it into noses and the people come down with colds. Even then, they must be certain that those colds were caused by nose drops and not just colds that the people would have contracted anyway.

Investigators have uncovered interesting facts about colds, which may or may not be related. At least they provide leads. Here are some of them:

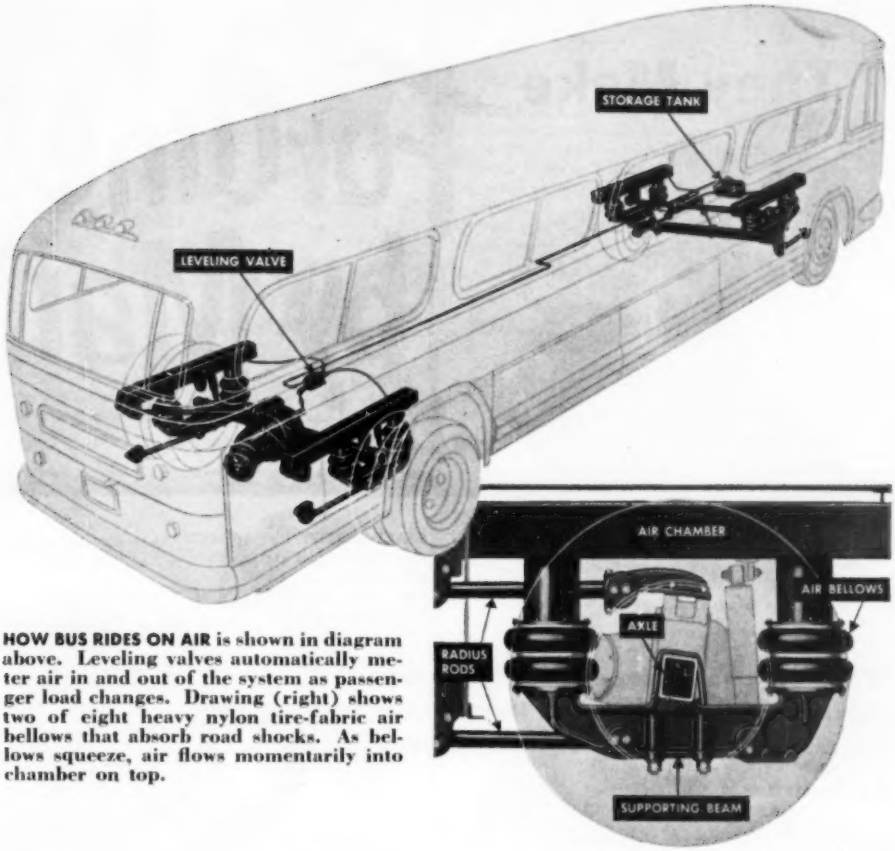
- You can't catch cold by standing in a chilling draft, even when you are wearing a wet bathing suit.
- People who live on the arctic island of Spitsbergen have no colds between the departure of the last ship in the fall and the arrival of the first ship in the spring. Then the island is swept by colds.

Children Are Cold Targets

- Small children catch colds more readily from other small children than they do from adults.
- The closer and longer the contact you have with a person who has a cold, the more likely you are to catch it.
- The older you get, the fewer colds you have.
- Families with school children have three times as many colds as families with no school children.

Maybe if all the medical researchers were to come down with bad colds simultaneously, they would suddenly get mad enough to focus their skilled attention on the common cold and lick it.

Meanwhile, we sniffle and snarl. END

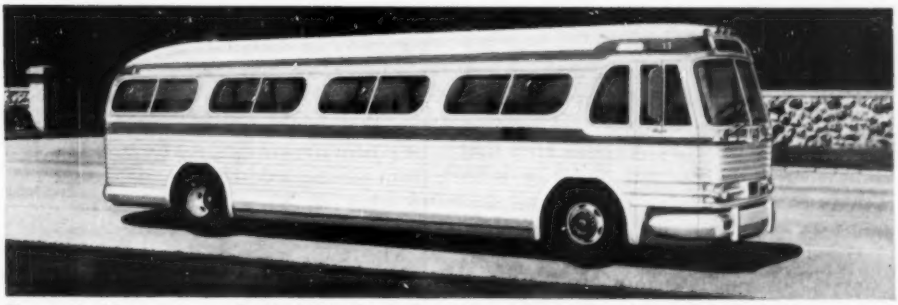


HOW BUS RIDES ON AIR is shown in diagram above. Leveling valves automatically meter air in and out of the system as passenger load changes. Drawing (right) shows two of eight heavy nylon tire-fabric air bellows that absorb road shocks. As bellows squeeze, air flows momentarily into chamber on top.

Air Springs Give Bus a Bumpless Ride

YOU will be literally riding on air when you board a new type of intercity bus just announced. It has no leaf springs at all. In their place are bellows containing nothing but air.

The air absorbs road bumps so perfectly that passengers can read their magazines without a jiggle. Designed and built by the GM Truck & Coach Division, the new suspension system absorbs all types of road shock, from chuck holes to ordinary tire-tread vibrations.



Bus seats 41 passengers behind 72-inch-wide "picture" windows, has over-all length of 35 ft.

They Make Fortunes by Mail

SPACE HELMET has tubes and collar that are blown up. Clear-plastic dome has wide openings for breathing.

When the public takes to a bright idea it sends millions of dollars through the mails to these smart businessmen.

By Andrew R. Boone

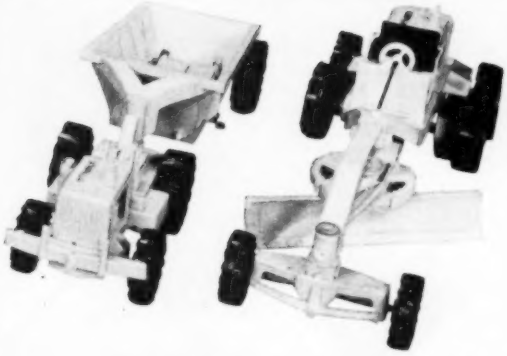
LITTLE did Arthur Godfrey dream, when he began strumming a ukulele on his TV-radio program in New York, that he would give a shot in the arm to an amazing industry 3,000 miles away.

Across the country in Pasadena, Calif., Charles W. Worley heard the Hawaiian strains. Next morning he huddled with his staff. A few weeks later he cradled in his arms a brown-and-cream ukulele all made of plastic.

Worley, like scores of other clever producers of toys, home wares and just plain gimmicks, then boarded the bandwagon to big sales throughout the nation. He operates one of 102 fast-growing companies in the Los Angeles area that cater to the whims and tastes of folks willing to entrust a dime or several dollars to the U. S. mail. The gimmick industry blossomed shortly after the war. Now it's in full flower, making fortunes for enterprising inventors and owners.

Worley started his BW Photo Utilities company to manufacture darkroom and photographic items. He found the market limited. Then he added low-cost novelties that could be sold by mail. Today he's turning out 80 individual offerings, from plastic iced-tea spoons for a nickel to ukes at $3 a copy. Nearly 75,000 units are made in his plant every day.

The men who devise and sell these gadgets and gimmicks necessarily keep their eyes open for a hot idea. A small

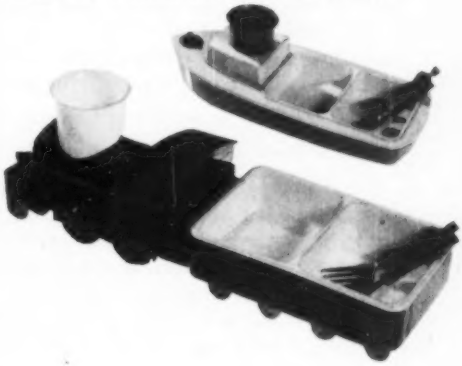


EARTH MOVER AND SCRAPER are made of a tough molding plastic, copy real Caterpillar equipment. A million of them were sold by mail order in eight months.

MAUNA LOA UKULELE was rushed to production after Arthur Godfrey publicized uke on TV. It can be sold cheaply by mail because it is mass-produced plastic instead of traditional wood.

PLASTIC PISTOLS go big with kids. Top three, reading down, are frontier gun, automatic, and space gun—all water pistols. Bottom spring gun fires rubber-tipped dart.

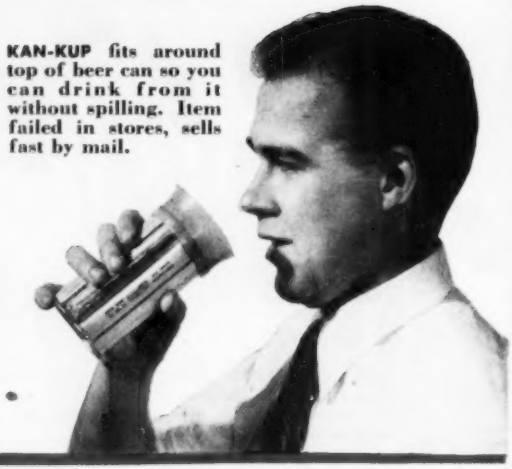
FEEDING DISHES for very small fry are plastic molded to look like trains and boats. Chow Scow (top) can be filled with hot water to keep food warm. Chow Chow Train (below) is big seller.



EVEN AN OIL CAN is made of acidproof plastic for the mail-order trade. Spout is removable.

PLASTIC BOAT is balloon-powered. Air escaping through stern pushes it along. When air is gone, boat sinks.

LUCITE TREASURE DOME sells by the thousands each month. It displays medals or old watches hung by wire from top. Maker expects to sell 100,000 of this $4 size in '53. Larger ones cost up to $50 each.



KAN-KUP fits around top of beer can so you can drink from it without spilling. Item failed in stores, sells fast by mail.

fortune may be won or lost on a single item. Every time a new idea pops up, the manufacturer must figure on spending perhaps $25,000 or more before it's rolling. Up to $10,000 for dies. Another $10,000 for materials, boxes and promotional literature. Maybe $30,000 for advertising. Then the orders come in—or they don't. There's no sure way of knowing in advance.

Some Items Are Mail-Order Naturals

What makes a good mail-order item? Generally, says mail-order expert F. G. Berlin, it's an item that doesn't sell readily across retail counters. It needs words, and usually a picture, to explain it.

You can see a circular plastic collar alongside a beer can. What's it for? Berlin makes this simple collar. Before offering it through the mails, he tried it out in a Los Angeles drugstore. One day he approached the counter, asked the young sales lady to explain it. Picking up can and collar, she said, after a long pause, "Must be a coaster." Instead, the collar fits over the open end to make drinking easier. Since then, the mails have sold more than a million can collars.

Few gimmicks just happen. Hard thought and often long experiments go into their creation. Take "Pump-It." This is a pump, thinner than your little finger. It squirts catsup from a bottle.

A man walked into the Hollywood office of Clair E. Young, then manufacturing toys, and said, "Make me a gadget that will extract catsup from a bottle, and I'll sell a million." The first model wouldn't work. Other designs followed. At last Young came up with a model made of red polystyrene, clear poly, neoprene and stainless steel.

Then the blow fell. There was no customer for a million catsup pumps. Could a million customers be found for one apiece? A company was formed and an advertising campaign started. Shortly the pump began to catch on. Now the dies are busy, day and night, producing well into the third million.

One of the biggest winners in the race for sales is a simple little Lucite dome that stands on a base of hardwood. Berlin calls it a "treasure dome."

"There must be millions of homes with war medals and old watches rusting in old trunks and dressers," he reasoned. "Folks would get them out if only they had some way to display them."

Hot Cakes Sell Slowly by Comparison

Last April he ran two magazine ads. Sales were so good he upped his advertising, adding more magazines. Already he's taking in $20,000 a month. He sells both directly through the mail and through other mail-order houses. In a two-week period, the Marshall Field store in Chicago, starting with an order for six dozen, increased its purchases to 500, then 1,000.

PUMP-IT gets catsup out of the bottle without clogging the mouth. Nearly 3,000,000 of the sauce squirters have been sold through mails.

CERAMIC BOWL for nuts has center compartment to hold shells. Compartment lifts out for emptying.

Louis Glaser saw a group of children at play around a tractor on a construction job near his home one day. At that time, a year ago, mechanical toys of this sort were being made of metal, and were expensive. In plastic, Glaser reasoned, the price would come down to less than a dollar. But the toys would have to be authentic.

Glaser grabbed a plane for Chicago. There he obtained blueprints and permission from Caterpillar to use the company's name. From Dow Chemical Co., he secured a tough molding plastic. Last April he started production of a scraper, earth mover and grader. Both Caterpillar and Dow have mentioned the toys in advertising their own products.

Eleven years ago Leo White retired from his New York business of manufacturing dolls and toys. He moved to Los Angeles, intended to while away his days on the golf course. He couldn't stand the boredom. Shortly he rented space to "do a little tinkering." He became interested in plastics.

Squirt Guns for Little Squirts

His tinkering grew rapidly into a line of molded housewares. Then came toys. Among them a little polystyrene water pistol you can hide in your hand. Its diminutive pump squirts 200 shots at one filling. Kids bought 2,000,000 the first year, came back for 5,500,000 the next, grabbed 9,000,000 last year. White expects to sell 15,000,000 in '53. His machines grind out the little squirters 24 hours a day, 360 days a year.

These grab-the-main-chance boys sel-

Here's What Experts Want in a Mail-Order Item

HERE are eight characteristics of the ideal mail-order product, according to three experts whose views were reported in the magazine *Advertising Age*.

- A product that everyone needs or can use.
- A price between $2 and $5, making installment payment unnecessary. (If no repeat business is possible, say the experts, the selling price should be four times the product's cost at the warehouse.)
- A value that can be explained easily to the reader of the original advertisement.
- The possibility of a repeat sale of a similar or related product.
- Exclusive features or a patented design that shuts out store competition.
- No quick deterioration—otherwise product loses value if not delivered promptly or is returned.
- A product easy to pack, cheap to ship.
- A product that needs little or no servicing after delivery.

dom rest on a single success. In White's Knickerbocker Toys plant I saw his future plans taking shape. Soon he will offer kids a submachine gun that squirts a stream of water 60 feet.

Ideas for toys spring from odd sources. Bernard Glukes, an aircraft engineer, sat in his home one evening studying pictures of snowflakes. He noticed that some forms seemed capable of interlocking. This simple observation led him to whittle out a dozen models, all exactly alike. By putting them together, he discovered he could create interesting forms. Now he's drawing royalties from a Los Angeles manufacturer who turns them out in colored polystyrene.

Space Men Chase Cowboys Out of Picture

Children's whims govern the toy output. The cowboy is passing, the space man taking his place. That's why kids are grabbing up Barney Rosson's space helmet. Looks something like the latest Air Force helmet designed for wearing with a pressure suit. A kid blows up the vinyl plastic tank and oxygen tubes, dons the acetate butyrate helmet, and he's set for a trip anywhere his imagination carries him.

New ideas flow from these enterprising people every week. Maybe it's a metal gimmick that holds a hot egg while you crack it. A pancake griddle with built-in thermometer. A meat saw with grooved handle for tenderizing tough meats. Holders for spoons to prevent dripping. Or tweezer needles for patching torn clothing.

Some come from the proverbial garret. Following his discharge from the Air Force eight years ago, Jack Bozung began designing soap paints that would wash off easily. He mixed them in his garage at home. Paints led to blackboards for youngsters. Today his Celco Corp. has 60 employees, grosses a million dollars a year.

Hit the Jack Pot—or Lose Your Shirt

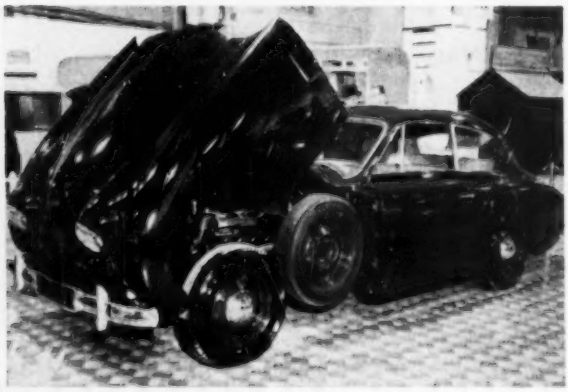
W. R. Moody started his successful luggage-tag business in his living room. The personalized tags, plastic stamped with name and address, overflowed into a Burbank shop where 12 workers will turn out $100,000 worth of tags this year.

But a new item may be a dud. Its promoter will soon know if orders fail to arrive. S. W. Barrett has offered more than 800 different things in eight years. Only a few rang the bell. A metal rack for hanging skirts failed to click until he added a hook at one end, permitting it to be suspended horizontally for drying ladies' hose. Now it goes by thousands.

There's no sure-fire rule for success in this business. You may hit the jack pot or lose your shirt.

"You pays your money," says Barrett, "and takes your chance." END

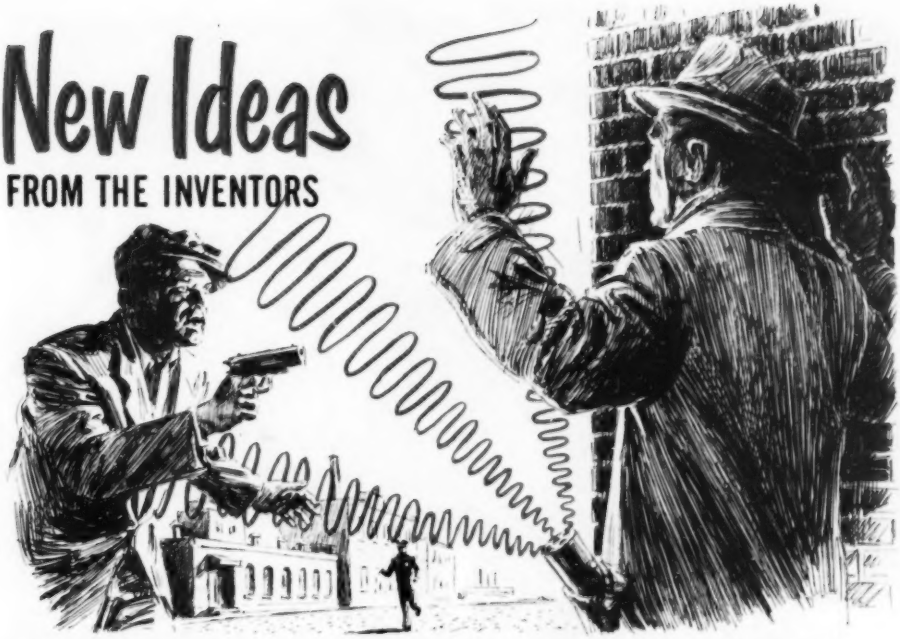
Car Tips Its Bonnet Hydraulically to Bare Engine



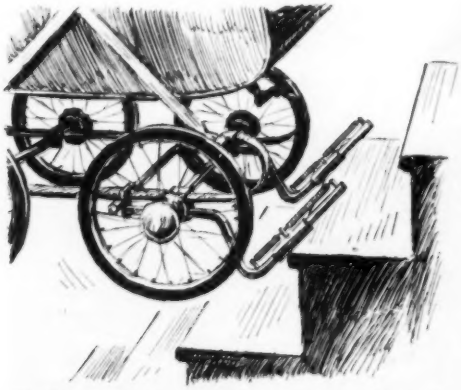
It's no trick to get at the Ford V-8 engine of this Monte Carlo Saloon Allard. The whole front part of the car, which is hinged behind the bumper, raises and lowers hydraulically like the tops on American convertibles.

The British right-hand drive leaves plenty of room for a spare tire at the left of the engine. This model has de Dion rear suspension, previously used mainly on competition cars. The car costs about $4,600.

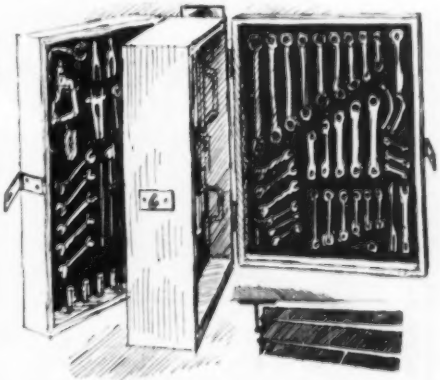
New Ideas
FROM THE INVENTORS



1 Alarm to Foil Thugs. A siren run by flashlight cells in this pocket-size alarm would rout a thug and summon aid. If danger threatens, you would press a button to lock its switch on. There would be no way to turn off the noise, which would continue until the battery ran down. The device is intended to safeguard men and women who must travel along lonely streets at night, as well as messengers carrying money.



2 Carriage to Climb Stairs. Up and down steps, this baby carriage could be handled smoothly and easily. Tubular slides on the undercarriage engage a stair tread while the wheels are lifted past its edge. Then, springs return the slides to their former position. Street curbs would be negotiated in the same way.

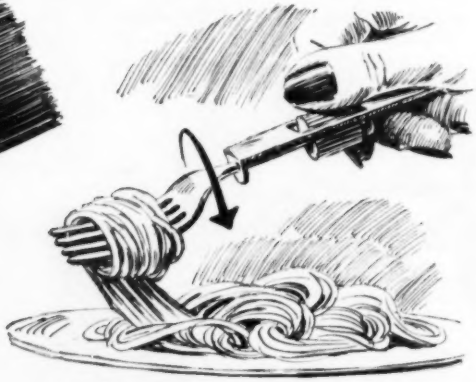


3 Toolbox to Open Like Book. Mounted on the wall over a bench, this tool cabinet would take up no bench space—and would store more tools in plain sight and easy reach, the inventor maintains, than any he has seen. Three hinged sections open like pages of a book, as above, or swing back to fold together and close (inset).

MORE New Ideas from the Inventors

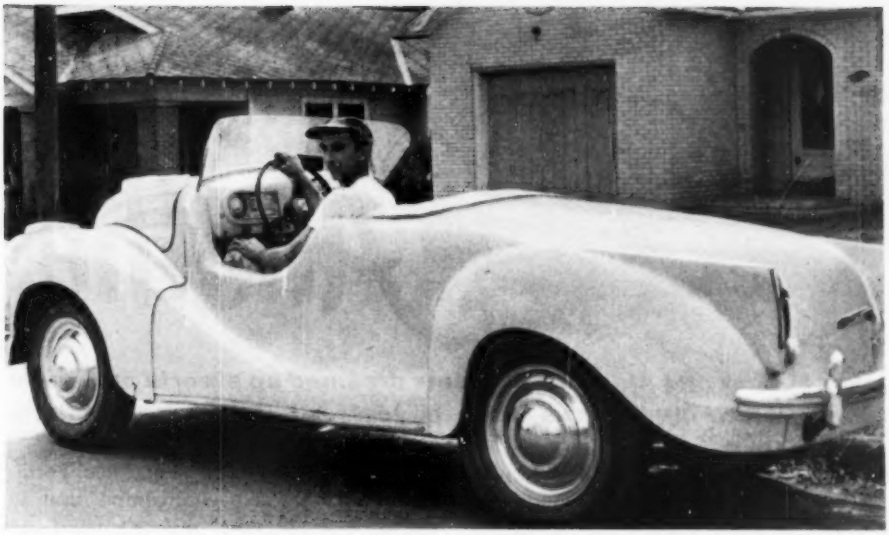
4 Snow Remover to Clear Roof. With this invention, you could prevent accumulating snow from choking gutters and causing leaks—and you wouldn't even have to go out in the cold to do it. A rake on a curved shaft would scrape snow off the roof when manipulated from within a window, by using two handles and by extending or withdrawing a frame of pivoted bars that rests against the body for counterbalance.

5 Brush to Open Paint Can. You wouldn't have to hunt around for a screwdriver or other tool to open a paint can if you had this double-purpose paintbrush. Its handle is fitted with a notched metal tip that's designed to hook under the can lid and pry it off.



6 Fork to Tame Spaghetti. Picking up long, slippery strands of spaghetti would be easy with this rotating fork. You just twirl a knob in the handle and it spins the tines so that they quickly wind up the spaghetti in neat coils without your having to twist the fork itself.

Patents on these inventions have been granted to: 1. Anthony Merola, Pittsburgh, Pa.; 2. Hurley M. Creveling, Elizabeth, N. J.; 3. Alfred E. Grennan, Benton, Kan.; 4. Edward G. Fischer, Holliston, Mass.; 5. Emerson T. Oliver; Marblehead, Mass.; 6. Philippe Piche, Valleyfield, Que.

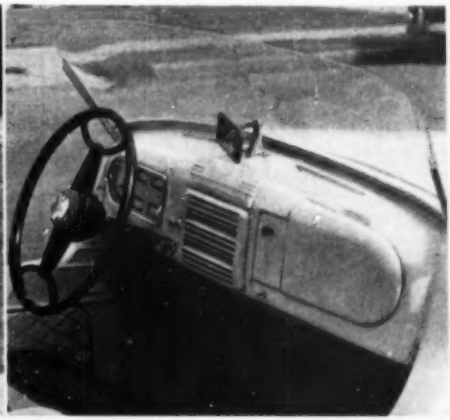


LESS THAN $125 was Larry Miller's total cash outlay for this unique little sports job, which was reborn from the burned-out wreckage of a 1948 Austin. Note absence of chrome trim.

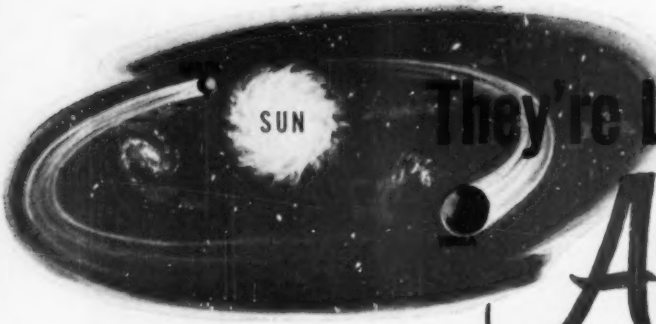
Junked Austin Makes Trim Sports Car

A COUPLE of years ago, Larry Miller parted with a sawbuck and a fin and became sole owner of a burned-up Austin. Subsequent investments included $19 for a battery, $65 for tires, $25 for upholstery—and two years' spare time. Result: the neat little three-seater pictured here. Like boardinghouse hash, a little bit of everything went into it. Among the baby sports car's ancestors are a '50 Ford truck (dashboard), a '49 Ford (its hood is now the Austin's rear deck), a '41 Chevvy truck (headlights), a '41 Olds (steering wheel), a '41 Ford station wagon (seat), and an Olds "88" showroom model (windshield is cut from transparent hood used to display Rocket engine). Spare parts and paint were easy—Miller runs a body-and-paint shop in Magnolia, Ark.

THE FRONT of the new sportster is standard '48 Austin except for the headlights, which came from a 1941 Chevrolet truck.



THE DASH PANEL and cowl of a 1950 Ford pickup truck were cut down to fit. The wheel and shaft once steered a 1941 Oldsmobile.



They're Living Off Another

Oskar Lebeck and Alden McWilliams dreamed up a world and made it pay by picturing it on the comic pages—for 10,000,000 readers.

MORE than 10,000,000 newspaper readers are all excited about the discovery of a new planet, a twin of ours. But no astronomer has given it a second thought. That's because Terra, as the new planet is called, was found, not in the heavens, but in a cartoon strip.

The strip, "Twin Earths," is a spectacular newcomer itself. It got off to the fastest start in newspaper-syndicate history, and has spun to stardom at flying-saucer speed.

Oskar Lebeck, of Croton-on-Hudson, N. Y., who thought up "Twin Earths," and Alden McWilliams, of Noroton Heights, Conn., who draws it, have "created" quite a planet.

In the first place, we can't see Terra. It is the same size and composition as Earth, and the same distance from the sun, but it is on the other side of the sun. And because it travels in the same orbit as the earth and at the same speed, we never will be able to see it—except by space ship, in future installments of "Twin Earths."

By all the rules for adventure-strip writing, "Twin Earths" should have been a bust. It makes no attempt to interest children. It doesn't even try to appeal to all adults—just those who are interested in science. And its fantasy isn't very fantastic.

Lebeck and McWilliams, whose homes

EARTH IS DISCOVERED by some girls from Terra, our twin planet, on a flying-saucer trip.

THIS WAS IN 1903, according to "Twin Earths." Vana, heroine of the strip, is the narrator.

By Don Weldon

Planet

AFTER 14 YEARS of creating comic books together, Oskar Lebeck (at left above) and Alden McWilliams are an expert team. They hit few snags in plotting and drawing "Twin Earths."

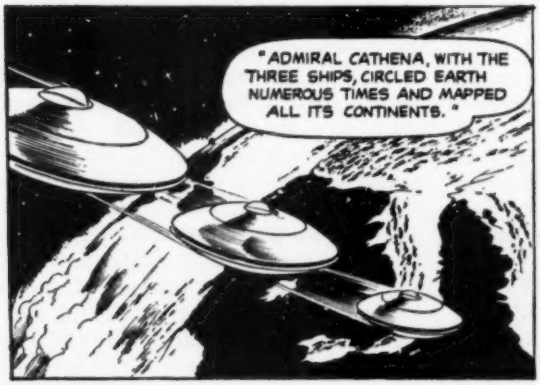
are only a few miles apart, keep nine or 10 weeks ahead of their readers. One plots, the other draws exciting events on this planet and on Terra, and then they smooth out details in weekly meetings.

Both Have Artistic Talents

Lebeck, nearing 50, was born in Germany. His career has included illustrating children's books, designing stage sets, textiles and furniture, and being the highly successful art director and managing editor of a publishing company. Two of his brainstorms proved highly prophetic. "Stratosphere Jim" and "Rex, King of the Deep" concerned superfortresses and submarine plane carriers with catapult launchers long before such craft were developed. He is undoubtedly just as clairvoyant about some of the marvels of "Twin Earths," but he *doesn't* believe that space travel is in the cards—except in comic strips.

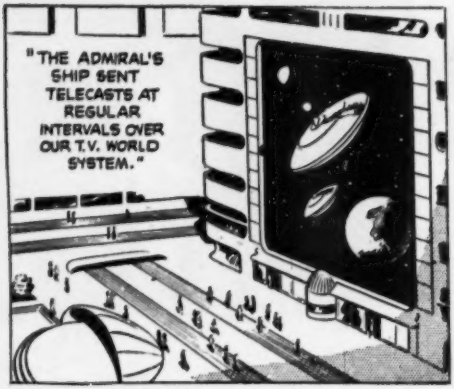
McWilliams, 36, showed talent as an artist when he was a child, but he has never studied mechanical drawing or been a draftsman. Despite this, for the advanced life of Terra he confidently designs two-way TV sets to fit women's handbags, walnut-sized walkie-talkies, and other electronic wonders.

He doesn't use models for any of his futuristic gadgets, though he sometimes has to raid his 3½-year-old son's garage



LIKE COLUMBUS the admiral from Terra who saw us first led a squadron of three "ships."

AN ALL-GIRL PARTY found Earth. Men are very scarce on Terra, "Twin Earths" reveals.



OUTDOOR TV SCREENS of mammoth size supposedly have long been in use on twin planet.

NOBODY HERE BUT US HUMANS, the girls from Terra found in a saucer's-eye view of New York.

ACCORDING TO VANA buses that ran on two wheels at top speed used to tear across Terra.

TRAFFIC GOT TOO HEAVY so the people of Terra abolished both automobiles and big cities.

of plastic cars when he needs help in visualizing an automobile from an unusual angle.

Lebeck, who has always read every book he could lay his hands on, spouts ideas at such a rate that he writes a week's six strips in an hour and a half.

When McWilliams tackles the same six strips, he usually completes his drawings in 4½ days, working from nine to five-thirty, with only a half-hour for lunch.

Young Woman Does Lettering

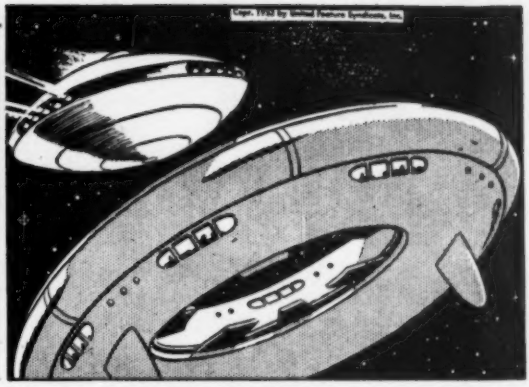
When the drawings are finished, McWilliams takes them to a young woman who makes a specialty of lettering the balloons (what the characters say to each other). Then they are ready for reproduction and distribution by the syndicate to newspapers, which pay from $3.50 to $150 a week, depending on circulation, for the right to print the strips.

In "Twin Earths," Lebeck and McWilliams passed up the science-fiction tendency to provide billion-mile rides between meals. They hung our twin planet in the skies only a short space hop away.

Terra is a peace-loving planet, too. That is rare indeed in these days when the writers of fantastic stories are so inclined to indulge in bloody encounters between humans and armies of little green monsters, animal or vegetable.

The friendly people of Terra are curious as the dickens about us though and, as the story of "Twin Earths" opens, have

VANA IS VINDICATED for "Twin Earths" fans when the FBI checks on her with a telescope.



WHAT THE FBI SAW was a space station from Terra that Vana said was "watching" us.

PEOPLE SPREAD OUT all over Terra and traveled by means of an entirely new kind of vehicle.

TERRA'S AUTOPLANE, as visualized by McWilliams, is a combination car and flying saucer.

landed a few beautiful women here to look around and report. One of them, Vana, is the heroine of the adventure strip. The hero is an earthling, an FBI man named Garry Verth.

It was quite logical, as well as romantic, for Lebeck and McWilliams to select a woman as a spy for Terra because the twin planet they have pictured is almost entirely a woman's world. The men had largely succeeded in wiping themselves out in periodic wars when a plague came along that destroyed the male hormones of most of the survivors. Only a handful was left to keep the race going. For hundreds of years Terra has been 92 percent female.

Those Terra girls have the edge on us, too, in science and technology. According to Vana, they wear indestructible fabrics that repel or attract heat. They also eat synthetic meat, build things of weightless metals, and live in Polaroid houses that turn with the sun.

Terra Had No Luck with Rockets

Terra's women scientists experimented with rocket building but gave it up, the authors of "Twin Earths" assert.

About 1903, readers of the comic strip learn, the Terra girls developed flying saucers. The choice of that date was as carefully calculated as the many other details with which Lebeck and McWilliams have crowded their strip. That

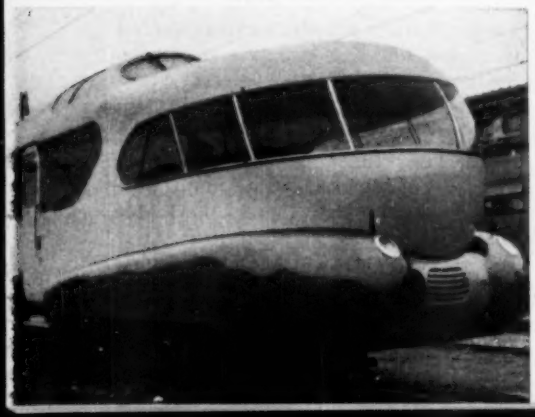
[Continued on page 254]

England Builds De Luxe Sportster with Automatic Overdrive

You're looking at what England calls the cheapest 100-mile-an-hour car ever built. It's the Healey Hundred and will sell here for $2,380. Powered by an Austin engine, it can hit 100 from a standing start in 37 seconds or cruise 35 miles on a gallon of gas. Secret of the car's high speed and low fuel consumption is said to be an electrically controlled overdrive which cuts in automatically when the speed reaches 50 miles an hour. The sportster recently smashed the Belgian national record for cars of its class, covering the kilometer (⅝ mile) at 111.73 miles per hour.

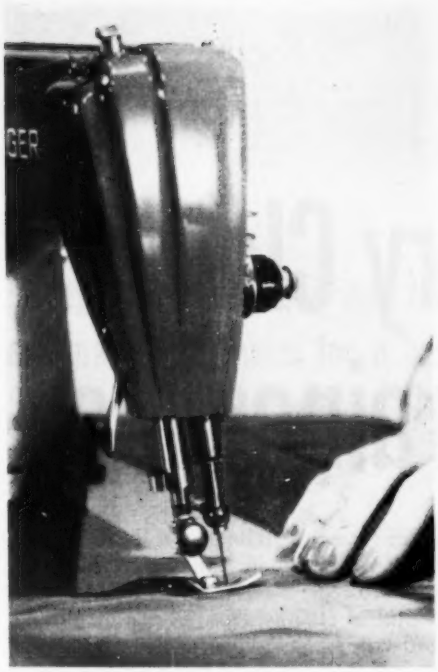
Observation Car Rides Up Front

Passengers see where they're going, instead of where they've been, on this new Italian electric train—they sit right up front. The door behind the sweeping fenders is the engineer's entrance. He sits in a cockpit behind the passengers, watching the tracks from the bubble on the roof.



German Cutter Slices Coal

The miner below operates a German coal cutter under test in the U.S. as a way of saving wasted coal. Slicing off two tons of soft coal a minute, it sneaks into narrow veins too small for conventional equipment. It pushes the coal onto a conveyor as it moves along a vein at 75 feet a minute.



Slanted Needle Easy on Eyes

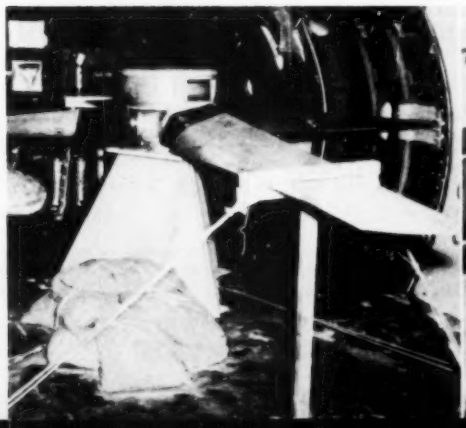
For greater visibility, the needle and presser bar on this home sewing machine are slanted at an angle toward the operator. The machine weighs less than 16 pounds and can be removed from the cabinet and carted off to sewing bees outside the home. Singer makes it.

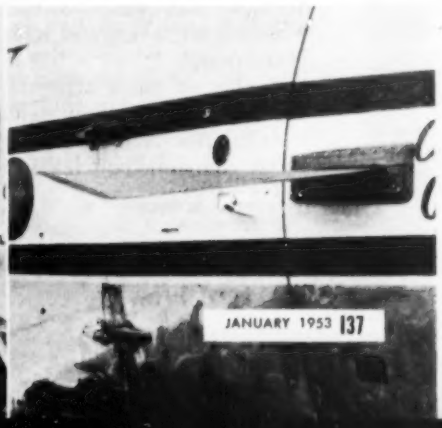
Bus's Scope Sees Over Crowd

With one eye to a periscope like a submarine commander, this German bus conductor can see what's happening at the exits even in rush-hour traffic. A passenger won't be carried a block beyond his stop because the bus won't be started until the periscope shows the doorway all clear.

Props Shipped Whole by Poking Blades Through Plane's Body

Because knocking down and reassembling a propeller takes three or four mechanics from six to eight hours for each operation, Peter Dunstan, maintenance foreman at Pan American's London base, worked out a gimmick to ship props ready for use. A pedestal built into a DC-4 supports the prop (left below). One blade protrudes through a slit in a door on the port side of the plane (right below). A window on the starboard side is fitted with an aluminum sheet with a slit in it to take another blade. The two tiny wings poking through the sides of the ferrying plane have no effect on its performance.





Help Wanted—Male

ELECTRONIC ENGINEERS

GRADUATE E E's
SOME ELECTRONIC
EXPERIENCE

NOW IS TH
TO JO

INTERNAT
PROJECTOR

MAKING PROG
OVER A QU
OF A CEN

MANUFACTU

MOTION PI
PROJECT

SOUND EQU

AUTOMATIC
CLEANING EQ

GYROS

SERVO SYS

These openings are t
Engineering group a
exptional opportunity
ence. You will guide t
from prototype to pr
work involves liaison
search and productio
as development of t
design.

These are Per
Positions wit
Excellent Opp
for Advance

Pension plan, movi
for qualified ap
Life Insurance, Hos
Surgical and Sick
for you and your

For an Immediate
Please Write, Call

INTERNATI
PROJECTOR

55 LA FRANC
BLOOMFIELD, NE
BLOOMFIELD

ELECTRONICS & Mechan

. . . North Americ
mfrs of the F-86
has an

URGEN

Help Wanted—Male

ENGINEERS

JET AVIATION
at
REPUBLIC

ENGINEERS
DESIGNERS
DRAFTSMEN

Help Wanted—Male

ENGINEERS

UNUSUAL CA
OPPORTUNITIE

R
C

Industry Clamors for Trained Men

IF YOU were graduating from engineering school next June, you'd have a lot of callers coming. Industry's man hunters are already prowling from college to college. Most of them want engineers first of all. But they are also on the trail of chemists, physicists, metallurgists, geologists and other scientists.

This seller's market for science talent is big news for boys and girls who are nearing the end of high school and are planning what to do next. For not only is the demand for science talent paying off with good jobs for graduates. It is also making it financially easier for bright young people to get a science or engineering education today than at any other time in the past. If you've got the brains, don't worry about the money.

The colleges are doing a lot to help good students through school with loans and grants. The Government is lending a hand with thousands of scholarships. And American industry itself is paying out a lot of good hard dollars to ensure a future supply of the brains it needs so much.

Why so much interest in scientists and engineers? Because we're short of them—desperately. Here's the situation:

- Trained brain power has become more and more important to industry since World War II.
- At the same time, Government is drawing in specialists by the hundreds to man weapons-research and atomic-energy plants.
- Fewer engineers and scientists will graduate in June than in several years past.
- A slice of those who do graduate will be claimed by the draft.

To get the men they need, the agents of industry are ready to pay high salaries. And they have their answers ready for tough questions about company policies and opportunities.

for Engineers in Design and Development Engineering in new supersonic designs

AERODYNAMICS ENGINEERS
(Advanced supersonic designs)
HYDRAULICS ENGINEERS

office in brand-new Dun & Bradstreet Building. Near all New York & New Jersey transportation.

OR
Farmingdale, L I
Monday thru Friday
8 A M to 2 P M

1. INTERESTING ASSIGNMENTS
2. EXCELLENT SALARY
3. GOOD CHANCES FOR ADVANCEMENT
4. MANY INSURANCE BENEFITS INCLUDING A RETIREMENT INCOME PLAN

REMEMBER: the commercial future

For Personal Interv
In New York
Phone Mr. John M.
PEnnsylvania 6-34
Wed, Thur & Fr

Help Wanted—Male

ENGINEERS
in
Midtown Manhattan
NEW GROUPS
NOW

Help Wanted—Male

ENGINEERS
WORK WITH
DU PONT

Help Wanted—Male

ENGINEERS

Here's your chance to become part of the vital telephone industry. Western Electric, manufacturing and supply unit of the Bell System, is now offering career positions to qualified engineers in the following fields.

1. MECHANICAL

Colleges, corporations and Uncle Sam are making it easier for a bright student to become an engineer or scientist.

By William M. Pinkerton

But any recruiting agent for industry who starts cold this month has some surprises waiting for him. He'll meet men who've been helped through college by an aircraft company, or a foundry, or a big electrical-products manufacturer. These men don't *have* to work for their benefactor—but they're sure to feel friendly toward it when it comes to a choice.

What's more, the industrial man hunter will find that some of the smartest men in the class of '53 don't want jobs. Not at any wage. Instead, they want to study more. A year of study beyond college can mean a lot to an engineer. Another two years will put him in the top rank of his profession, with the right to call himself "doctor"—and a chance to get in on the most exciting research projects.

And an able man is pretty sure to get help for such further study. Every great university has fellowships to help pay for advanced research. The McKay Fellowships in Applied Science at Harvard, and the Guggenheim Jet Propulsion Fellowships at Princeton and the California Institute of Technology are examples.

Or a man may get help from industry itself. At a place like Massachusetts Institute of Technology, the list of fellowships for advanced study and research sounds like a roll call of American industry. The Federal Government also gives more than 600 fellowships in science and engineering.

And if the fellowship doesn't come through in May or June, today's engineering student knows that industry will still be looking for men—not only next summer but for years to come.

This is a challenge for boys who are in high school now—for it won't be long before the man hunters are after the class of '57. A boy's answer turns on two questions. The first is pretty personal: Is engineering or science the life for me? Measuring and calculating

ENGIN
INSTRU
RESEAR
DEVELO
ENGIN

Experienced
electronic and
Instruments —
those with elec
chanical degr

Permanent po
stable, long
company.

Good pay. Exc
ing conditions,
benefits. 37½
Extensive over

Write, Phone
Employmen
ST 4-1

The Liquidon
SKILLMAN A
LONG ISLAND

ENGIN
Carrier Tele
Manufacture
B.S.
5 Ye

TEST EQUIPMEN
DEVELOPMENT
Electronic training or
experience desirable

PROCE
Assembly
phone an
ment. A
manufactu
edge of m

INDUSTRIAL EN
For Space Planni
Allocation of space
shop and office—large
tory—experience requi

SEND RES
APPLY

100 Centra
South Kear
(NEAR NE
PHONE: MITC
EXT 2

MONDAY THR
8:30 A.M.

...in physical measurements ... or the heat-flow problems of nuclear nature.

Salary, advancement, working conditions and benefits are excellent. Please send a complete resume, including salary required, experience and education.

MR. H. F. O. BOX 3400, PHILADELPHIA 22, PA.

ENGINEERS

GOOD PAY, OVERTIME
EMPLOYE BENEFITS, PERM POSITIONS

Saturday or evening interviews may be arranged. Reply stating fully experience, education, age and salary required.

KD710 TIMES

Submit detailed resume to:
The California
OIL CO.
P. O. BOX 2
BARBER, NEW JERSEY

are basic in these fields. To make an engineer, you start with a mathematician. The boy who is good at geometry and algebra has the right start. He needs more: imagination—and a burning curiosity about *why* things happen.

The second, and tougher, question is: How do I get there?

Your first step is to stop thinking about "college" in general and start thinking about specific places. Should you stay home or go away? About two-thirds of the cost of college is board, room and transportation. Tuition—what you pay for being taught—is the smaller part although it looms much larger in private colleges than in state universities.

You often can do a year or two of spadework in the local college and shift to some big place to finish up. Before starting, though, you need to know whether you'll be able to transfer. Most state universities will take students starting their sophomore or junior year. Many private institutions will not, but some, like Case Institute of Technology and MIT, admit a limited number of men after two or three years in such colleges as Beloit, Oberlin and Carleton.

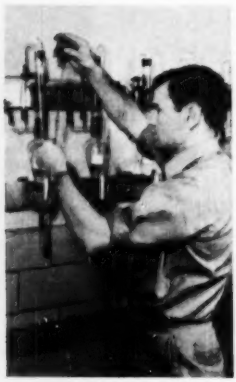
Many men travel long distances, at a real sacrifice, to get what they figure is tops. The big institutions welcome them. They want a student body that represents the best from the entire nation. To get it, they have large scholarship funds.

Most scholarships cover a year's tuition. That's $600 or more in the big private institutions. Places like Harvard, Yale and Princeton have some scholarships that pay a man's full expenses.

No college has enough money to help all its needy students. But in some institutions, one out of four is getting aid.

The big news is that, if you are The Guy, industry, too, wants to help you. Big companies started helping college graduates go on with advanced study and research a long time ago. Now, many businesses are concerned with the able high-school graduate who lacks funds to go on to college.

Suppose you are a good student, standing well up in your class, quick at math and eager for engineering. How does industry find you? It doesn't. You have to find it. Some companies place their bets through the colleges. At Carnegie Tech, for example, you might be helped by aid provided by Westinghouse. At any one of 19 major universities—such places as Columbia, Notre Dame, Washington, Wisconsin—you might get the $800-a-year RCA scholarship.



CHEMIST. Dr. Ross M. Hedrick hit the headlines this year as the co-inventor of Krilium, Monsanto's soil conditioner (PSM, March '52, p. 106). Dr. Hedrick went through the University of Illinois with the help of a state scholarship. Awarded competitively to three boys in each county, this paid four years' tuition. In addition, the National Youth Administration (no longer in existence) paid him $15 a month for the first three years. He earned most of the rest of his expenses by farm work in the summer and odd jobs in the winter. Dr. Hedrick went on to earn his master's and doctor's degrees at Indiana University with the help of a graduate assistantship, partly underwritten by the Council for Medical Research. Now 31, Dr. Hedrick has just been made a group leader in Monsanto's Central Research Dept., Dayton, O.

Be Prepared to Answer Questions

To get this kind of help, you go through the regular college offices. You apply for scholarship aid when you seek admission. You can expect the college to ask some sharp questions to make sure you really need the money. But you will

AERONAUTICAL ENGINEER. Dr. William J. O'Donnell is chief development engineer at Republic Aviation, Farmingdale, L. I.—builder of the Thunderjet fighter. He entered tuition-free Cooper Union in New York City by competitive examination; won a $300-a-year Emil Schweinberg scholarship to help pay his other expenses by standing each year in the top 10 percent of his class. His graduate work in mechanics, which won him a Ph.D. from Catholic University in Washington, D. C., was paid for by a scholarship that supplied room, board and tuition. This was one of 25 Knights of Columbus scholarships, awarded competitively.

know when you are accepted whether you can count on financial help.

If your father works for the Ford Motor Co., you may find the help close to home. Right now, Ford is helping nearly 150 sons and daughters of employees through college. The company itself picks those it will help, using a careful scholastic-aptitude test. A boy who comes out on top is free to choose any college in the country. For four years Ford pays his tuition and fees and, if necessary, up to $750 a year expenses.

If you are going to a Long Island high school, you can ask for aid from Grumman Aircraft, which picks a number of boys to help each year. Each boy can go to any engineering school he wants. Grumman pays full tuition, and gives the boys summer jobs to boot.

The Foundry Education Foundation offers similar help primarily for men already in college and studying metallurgy. The American Institute of Steel Construction gives ten $1,000 scholarships for civil-engineering students.

New companies are developing scholarships every year. It pays to watch for them. Dr. H. Norman Feingold, an authority on scholarships, reports that one $500 scholarship in Greater Boston a few years ago was awarded without a contest. Only one boy applied.

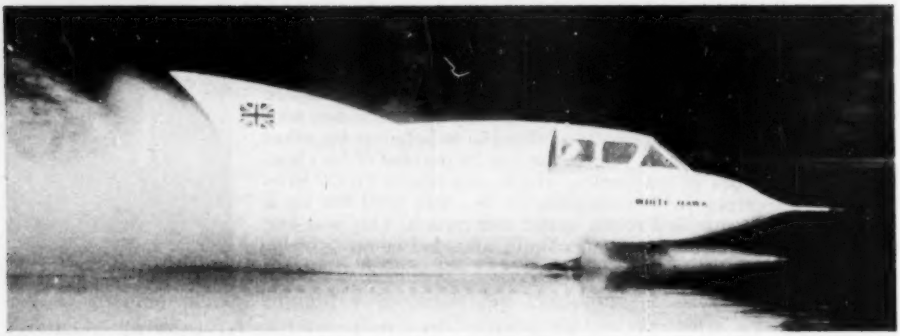
Veterans Get a Special Break

One of the best scholarships around right now is marked "for veterans only." Two years' service in the Army, Navy, Air Force, Marines or Coast Guard in the Korean War period entitles you, if single, to $110 a month for four years of college. (If married you get $135; if married with children, $160.) This is paid directly to you, and you pay all your own college expenses. In the big schools, the GI aid won't cover everything—but it will get you off to a good start.

With this veteran's scholarship ahead, many high-school graduates can use a hitch in the service to grow a little and get ready for college work. Some boys are "late bloomers." They develop slowly in high school, but spurt later. There

[*Continued on page 246*]

PHYSICIST. Dr. Walter L. Brown, a research scientist for Bell Telephone Laboratories, got help from Uncle Sam for his education. For two-thirds of an accelerated college course he received board, room and tuition at Duke, and $65 a month—all from the Navy V-12 program. During four years' study for a Harvard Ph.D., he drew $125 a month under the GI bill. In addition he held a $100-a-month fellowship for the first two years in return for part-time teaching. A Shell Oil Co. pre-doctoral fellowship paid lab expenses and college fees for most of the last two years. With Bell since 1950, Dr. Brown is now doing research at Murray Hill, N. J., on germanium, the element used in transistors.



New British Jet Speedboat Aimed at 200-M.P.H. World Record

THIS jet-powered speedboat was clocked doing 90 m.p.h. during trial runs in Britain this fall. Mrs. Stella Hanning-Lee, wife of the owner of the boat, aims to drive the White Hawk beyond the record set by British speed ace John Cobb. Cobb set an unofficial mark of 206.89 miles an hour before he was killed when his craft exploded.

New Combination Family-Sports Car Grows from British MG

HERE'S a brand-new family-sports car: the Arnolt. Built on an MG TD chassis and powered by an MG engine, the convertible model at right weighs only 20 pounds more than the TD roadster, yet seats four instead of two. A hard-top model adds another 20 pounds. Bodies are built by the Italian designer Bertone.

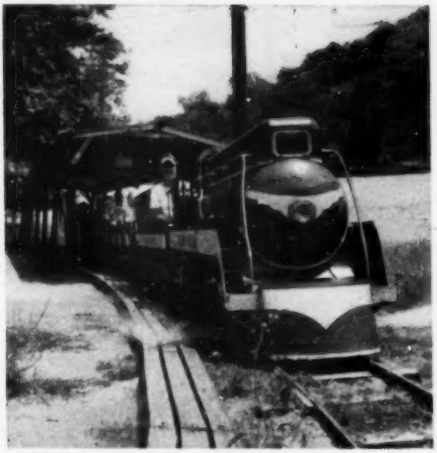
Both cars are in the $3,500 class and are distributed by S. H. Arnolt, Chicago.

Low Camping Trailer Raises Roof to Give Standing Room

IF YOU'RE in the market for a lightweight camping trailer that won't block rear-view vision from your car, here's a tip from John Dudley of Anaheim, Calif.—build it yourself.

The body and top of the collapsible, 800-pound job below were formed over plaster molds by laminating glass-fiber cloth and plastic. After curing, the body was fitted with wheel boxes, a plywood bottom and an angle-iron frame.

The top is raised by a crank, pulling up waterproof canvas sides (right below). Inside is space for a bed, folding table, stove and cupboards.

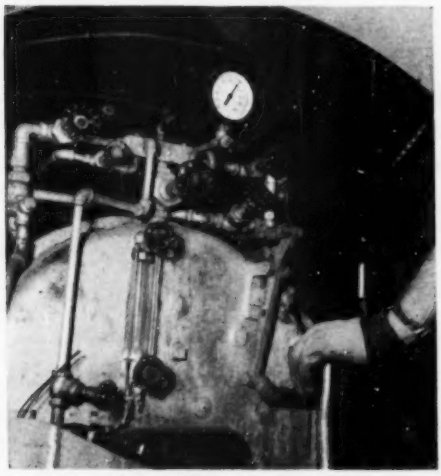


QUARTER-SCALE LOCOMOTIVE, drawing a tender and two cars, leaves terminal of Santa Ana Canyon Miniature Railroad. Red, white and black train is named Victory Special.

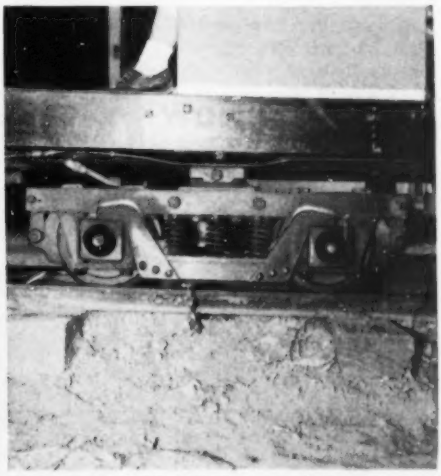
Family Runs Own Railroad

DRAWN by a miniature steam locomotive, this two-car train delights a load of kids by starting with a whistle blast, hitting 20 miles an hour, ringing a bell at a crossing, and rumbling through a tunnel. It gives ticket-buying passengers a mile-long ride through Santa Ana Canyon, Calif., and back to the starting point.

A family-owned enterprise, the line was built by Philip Martin of Los Angeles, a toolmaker at the Baldwin Locomotive shops prior to his recent death, and his wife. Currently Phil Martin Jr. acts as the train's engineer and a son-in-law, George Hale, lends a hand.

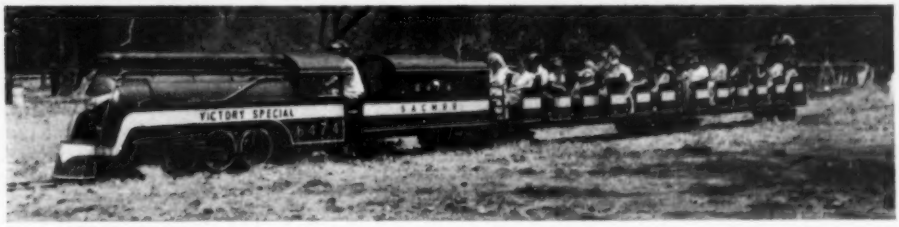


CAB OF ENGINE, like over-all design, is reduced-scale version of Norfolk & Western's Pacific type. Firebox burns three gallons of oil hourly to make steam for hauling train.



SPRINGS IN CARS' TRUCKS came from valves of Diesel-truck engine. Miniature 18-inch-gauge line has mine-railway rails, fastened with spikes to four- by six-inch wooden ties.

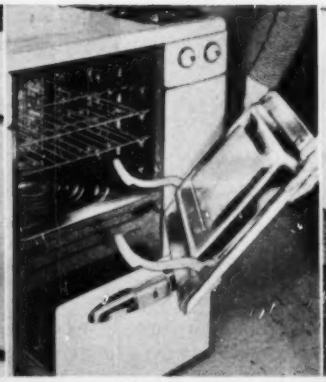
Highballing along straightaway part of its run, Victory Special hits top speed of 20 m.p.h.



What's New on the Range

1. Controls Are at the Back. Little fingers can't reach to the back of this stove to turn on the gas. But set on top of the back panel, the knobs are easier for the cook to see and use. The stove also has a Dutch oven big enough for a roast and a chrome broiler tray that goes right to the table.

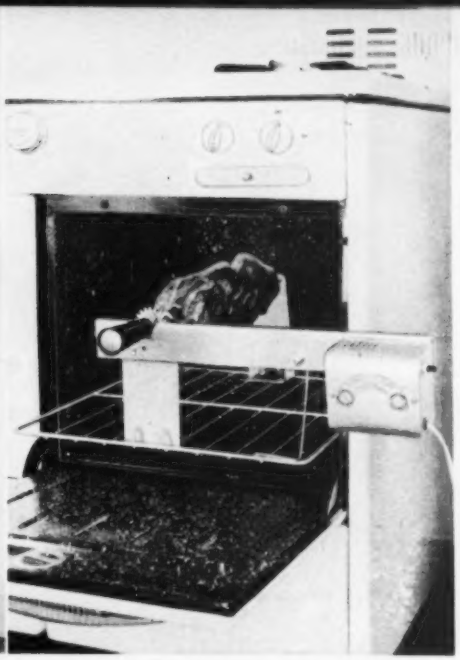
4. Safety Knob. This control turns on the stove only when pressed in firmly so teeth mesh. Once stove is turned on or off, knob returns to safe position. For gas or electric ranges.



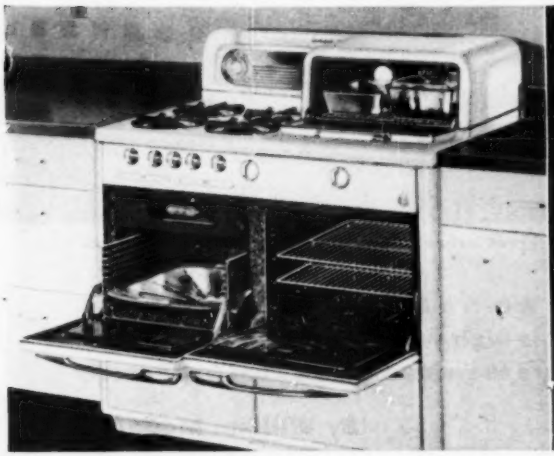
5. Door Lifts Off. With the door removed, it's a cinch to clean the back of this oven. And the whole front is exposed. You can slip the door out and hook it back on without tools.

6. Foot Opens Broiler. Toe pressure on a pedal brings this broiler out to view. Drawer opens to full length of pan so largest steak can be turned without interference from range.

2. White All Over. Lined with white porcelain and fitted with removable rack guides, the oven of this range is as easy to clean as a china bowl. An electric range, it also has a food-warming drawer heated by a 1,000-watt thermostatically controlled unit.



3. Indoor Barbecue. Any electric stove becomes a barbecue with this rotisserie. It will spit a turkey or a haunch of venison weighing up to 25 pounds. It works on AC, can be set up or taken down in minutes and is said to cut one-third off cooking time.

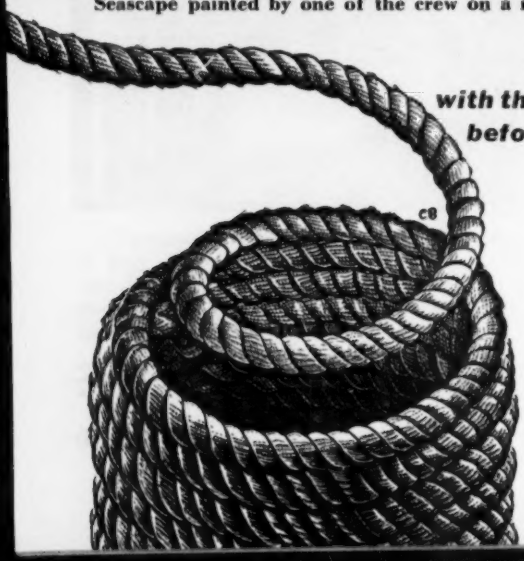


7. Topside Oven. The baby oven on top will often serve in place of its big brother and save gas. The broiler at left of the regular oven has a metal grid heated by the burner for radiant cooking.

8. Pick a Pan. Hiking cross-kitchen for a skillet or juggling a lot of nested pots to get one are chores the cook at this range can forget. Two compartments store pots and sliding racks bring the right one to hand.

Further information on these products can be obtained from: 1. The Maytag Co., Newton, Iowa; 2. Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio; 3. Rotiss-O-Mat Corp., 22-15 Steinway Ave., Long Island City, N.Y.; 4. Patent Button Co., Knoxville, Tenn.; 5, 6. Tappan Stove Co., 250 Wayne St., Mansfield, Ohio; 7. Geo. D. Roper Corp., Rockford, Ill.; 8. Norge Div., Borg-Warner Corp., Detroit.

Seascape painted by one of the crew on a recent expedition captures the lonely desolation



When a 100-ton monster is tagged with this high-voltage weapon it's all over before the whale knows what happened.

By William McGaffin

"THAR she blows!"

The lookout in the crow's nest cries out as a column of condensed vapor pokes above the distant antarctic horizon. "Thar she blows, thar she blows," echo other lookouts.

New Harpoon Electrocutes Whale in Two Minutes

of the antarctic whaling grounds.

CLOSE-UP OF ELECTRIC HARPOON shows head open as it is when lodged in the whale. The shaft is detached upon impact to prevent current leaking out from it into sea. Harpoon at top of page is in firing position.

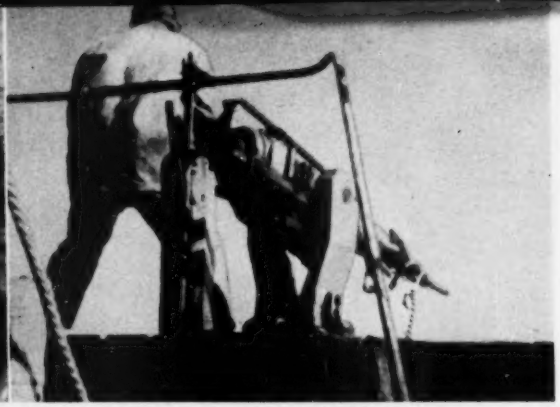
The whale is seven miles away. Quickly the gunner reckons her course and steers his little catcher boat to be nearer the next time she comes to the surface to blow.

Twenty minutes later the huge baleen—big as a big house—comes up again. The boat is closer to her now and she is frightened.

She may dive again. But the gunner is unconcerned. Though her powerful body can streak underwater at 20 knots, the whale is an air-breathing mammal. The faster she runs, the sooner she must come up to blow and refill her lungs. The old-time harpooner had to be rowed within hurling distance before she dived, but today's whale hunter rides a fast, steam-powered catcher boat and shoots from many yards away. He can bide his time.

When the gunner thinks he is near enough, he runs down the catwalk to the gun platform in the bow. With arm signals—antarctic wind makes shouting futile—he directs the helmsman. Maintain-

1 THE QUARRY IS IN SIGHT. Bundled up against the bitter cold, the gunner stands ready as the catcher boat closes in on the whale, most of whose vast bulk is hidden below the waves.



2 THE GUNNER TAKES AIM with the Kongsberg gun, also used to fire the grenade harpoon. One advantage of the new harpoon is that it can be fired from any type of whaling gun.

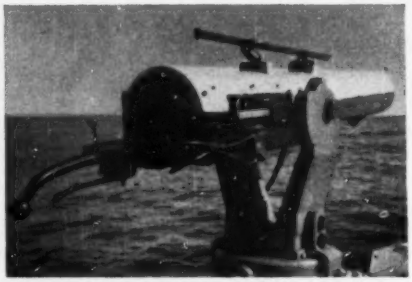
ing a precarious balance as the little boat heaves and plunges, he aims the harpoon.

He can see only about 10 feet of the whale. The rest of her 100-foot length is hidden beneath the surface. And in 3½ seconds she will dive again.

He pulls the trigger, and in three-quarters of a second the harpoon strikes. Electricity shot through the waterproofed rope attached to the harpoon then kills the whale in about two minutes. The lethal current comes from a dynamo in the hunting ship and is controlled from a box on the bridge.

This is the new, humane way to kill a whale. Most whales are still being hunted with grenade harpoons, set with time fuses to explode inside the whale.

If a whale is hit in the heart or some other vulnerable spot with a grenade fuse, she dies. But if not, she fights like a tuna and has to be played. She may sound, go down 200 yards, or race away on the surface, towing the catcher boat. Her death struggle may last from 40 minutes to two hours.



THE NEWLY DEVELOPED SPIGOT GUN fires a smaller harpoon (2½ feet, 100 lb.) than the Kongsberg gun. Note trigger under the handle and bar sight on top of the barrel.

With the new electric harpoon, experimenters believe, the average time required to kill a whale and tie it up alongside the catcher boat will be cut to 10 minutes.

With grenade harpoons, the average time is 50 minutes.

Old salts have admitted that if they could hear the cries of whales pierced with grenade harpoons they would never go to sea again. Whales can communicate with their mates underwater but make no sound audible to human beings above the water except the snorting noise when they blow.

There are economic as well as humane reasons, however, for the interest of whaling men in the new harpoon. With it, the hunting season can be shortened, and the high cost of financing a whaling expedition to the antarctic can be reduced. With it, too, the products can be better preserved. Some of the meat is spoiled when a grenade is exploded inside a whale.

A patent on an electric harpoon was applied for in London nearly half a cen-

3 THE GUN IS FIRED and the 180-yard nylon forerunner, electrified with 250 volts at 50 cycles, spins out behind the four-foot, 140-lb. harpoon. It strikes in less than a second.

4 DEAD WHALES ARE TAKEN IN TOW. Once a whale is killed, it is winched alongside the catcher boat and inflated with air to keep it afloat on the way to the factory ship.

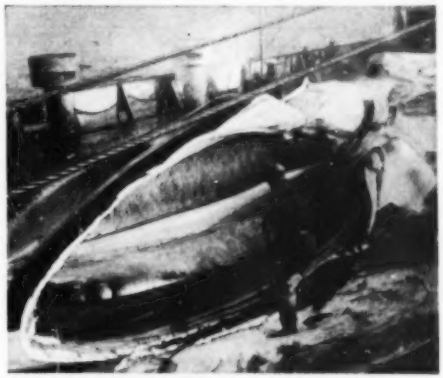
tury ago. But not until 1929 was such a harpoon used successfully. Dr. Karl Webber, a German engineer, then electrocuted four whales off the Norwegian coast. And since the war a new effort has been made in Britain and Norway by United Whalers, Ltd., cooperating with the General Electric Company of England and other concerns, to perfect an electric harpoon.

Biggest Whale Killed

Sir Vyvyan Board, the 68-year-old chairman of United Whalers, became so interested that he went down to the antarctic two years ago to live as a gunner and fire the experimental harpoon himself. With him went Robert Marsden, 50-year-old technical expert of the General Electric Company of England.

One of their problems was to perfect a rope. Pinelli-General Cables of Southampton, England, helped find a way to put a conductor in a nylon rope. About 200 ropes were built and tried before one that would carry the conductor satisfactorily was developed. It will stretch 45 to 50 percent under strain without breaking, and then return to normal.

Six experimental expeditions have now been conducted by Sir Vyvyan and Marsden since their antarctic trip. On their most recent trip, off the Norwegian coast, they killed the largest whale of the season. And on their return they told



5 THIS IS A WHALE'S JAWBONE on the factory ship's huge "flensing" deck. Here the whale's foot-thick blubber is stripped off and dropped below for cooking into whale oil.

6 CLOUDS OF STEAM rise up from below decks when the processing vats are opened.

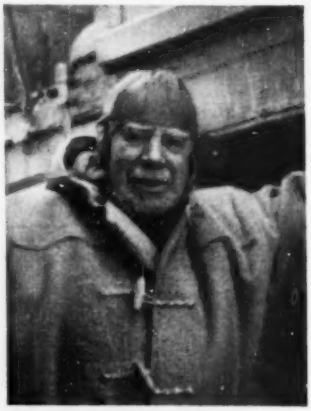
Photos from General Electric Co. of England, and United Whalers, Ltd.

this correspondent, "The principle of electric killing is established to our satisfaction, but its application requires final adoption on the whale catchers and necessitates training present-day operators in the new system."

More of the United Whalers boats will be equipped with electric harpoons for the baleen whale season that begins January 2, 1953, but the whaling industry is one of the most conservative in the world and will not abandon grenade harpoons overnight.

In the last 100 years there have been only two big changes in this adventuresome business:

- The gradual introduction of the grenade harpoon, invented by Svend Foyn, between 1864 and 1873.
- The appearance of slipways on the factory ships in the 1920s. Until these were adopted whales were made fast alongside, as in the days of Moby Dick, stripped of their blubber and then left to sink.



SIR VYVYAN BOARD, chairman of United Whalers, went along as a gunner on an expedition to Antarctica two years ago.

The electric harpoon will be just as revolutionary. Traveling 400 feet a second, it is faster than a grenade harpoon, which has a higher trajectory and an effective range 20 yards shorter.

The Kongsberg, Bofors or any other gun now used to fire the grenade harpoon can be switched over without modification to firing the electric harpoon. The only difference is in the length and weight of the harpoon.

The adoption of a more humane harpoon, however, will not make a whaling expedition a pleasure cruise. During the past summer, the United Whalers fleet put in for repairs at ports in England, Norway and South Africa. In October it sailed to assemble at Capetown. From there it is proceeding now to the antarctic through the roaring forties and the even more ferocious fifties. At 52 to 53 degrees south latitude, it will begin to see floating ice and albatrosses. At 58 degrees, it will encounter the icebergs.

This fleet is a modern armada consisting of:

- A 20,000-ton factory ship with a crew of 500. The whales are carved up on this and their blubber is cooked into oil.
- A refrigerator ship that receives the fresh whale meat as it is carved off the killed whales and freezes it for shipment home.
- A nursemaid tanker that supplies fresh water, fuel oil and equipment to the catchers.
- Seventeen little boats—some of them 500-ton catcher boats or killers, some 350-ton buoy or tow boats.

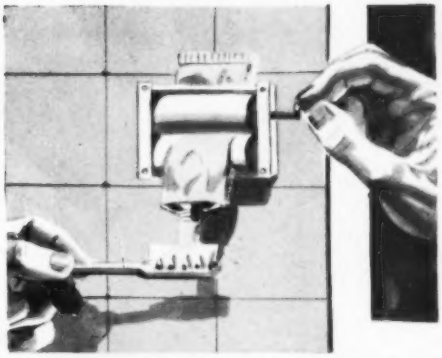
The catcher boats are low in the water, to make it easier to bring a whale alongside. But this also makes it easy, on decks constantly awash, for a man to be washed overboard—and a man can't live five minutes in the antarctic water. On a recent expedition a man came out from dinner one night and decided to take a chance walking the deck that was awash instead of climbing to the upper deck. He was swept overboard and never seen again. On another expedition, three years ago, the helmsman turned the boat too sharply when it was being towed by a whale. The boat capsized and all 16 men on board were drowned.

Summer is a strange word for the weather the whalers encounter when they begin their hunt in January. The sun never sets then in the antarctic. There is only a gloomy dusk for three hours each day when the sun hangs low on the horizon. The men work a 19- to 20-hour day on the catchers, and 12

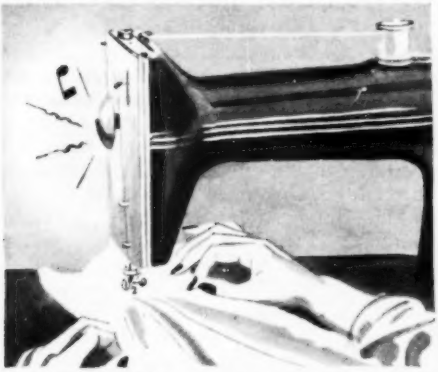
[*Continued on page 242*]

I'd Like to see them make...

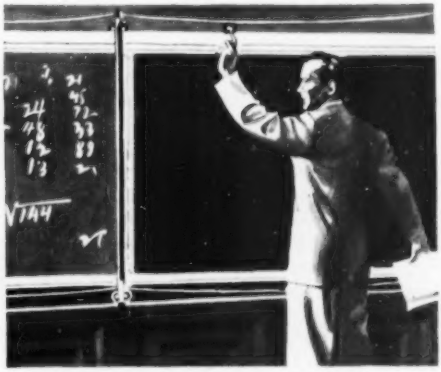
Everyone has his own pet idea of some gadget he would like to see in general use. What is YOURS? *Popular Science Monthly* will pay $5.00 for each one published. Use government postcards only. Contributions cannot be acknowledged or returned.



A TINY WRINGER to be attached to a bathroom wall for squeezing out the last bit of toothpaste, shaving cream or shampoo from the tube.—*M. Clark, New Castle, Pa.*



A WARNING BELL on a sewing machine that would ring just before the thread ran out, so you would not find you had been sewing with an empty bobbin.—*Brint Phillips, Los Angeles.*



AN ELECTRIC BLACKBOARD ERASER that would move back and forth across the entire board, cleaning it in a jiffy and saving time for teacher and students.—*Clark Fong, Fort Wayne, Ind.*

AN AUTOMATIC FLASHER built into the rear of a car. It could be turned on at the dash as a warning light when your car stalled on a busy highway at night.—*Jack Lloyd, Los Angeles.*

SMALL PLASTIC WINDOWS in the side of children's rubbers and galoshes so that you could insert the child's name for quick identification.—*Glenda Denton, Grand Haven, Mich.*

This House Goes 50 M.P.H.

It looks like a bungalow, rolls like a car and is self-contained like a cabin cruiser.

AS SOON as the man leaning out the window of the shingled ranch house above gets his gas, he'll be nudging the speed limit down the highway. What's more, while the house is doing 50, Mother can be taking a late snooze in bed, Junior fixing himself a hamburger on the kitchen range, and Sister having a shower.

For this novel house on wheels—called the Vita Home-Cruiser—is not only highly mobile but completely self-contained. With your own water supply, light and heat, you can live in it in a wilderness or a city—and whether in motion or standing still.

The house is mounted on a heavy-duty Ford F5 truck chassis. The six-cylinder engine, in a floor compartment beside the driver, gets 11 to 15 miles to the gallon. Lights are powered by six-volt batteries, kept charged by an hour's idling a day.

The body is built of plywood over two-by-twos. The shingle siding, designer Lawrence Vita (PSM, Dec. '51, p. 150) points out, not only makes the cruiser more home-like but is a lot easier to repair than metal sheets or wood panels. Actually the cruiser evolved from a little house that Vita built on an old auto chassis as a mobile display of a new type of shingle. When people proved more interested in a house on wheels than in shingles, he designed a 4½-ton commercial model to sleep a family of five.

The Home-Cruiser costs $7,500, f.o.b. Huntington, N.Y. So far the biggest order has come from a California concern that plans to rent them to vacationers. In the meantime demonstration models get plenty of double takes—people even drive alongside and flag them down to ask questions. Once police came to investigate a Home-Cruiser when neighbors reported that someone had built a house overnight!

Manhattan's skyline in background, Home-Cruiser owner takes off for country—house and all.

ON THE HIGHWAY, living-room picture window becomes the windshield. Passengers sit around table that can be combined with the two folding seats to make a double bed.

IN DAYTIME (left above) sofa in rear of Home-Cruiser is used for lounging. At night (right above) it's a double bed. Tiny bathroom with flush toilet and washbowl is waterproofed, doubles as shower stall. Water tank holds 80 gallons. Waste drains to septic tank.

KITCHEN SINK and stove of cruiser are right behind driver. Bottle gas fuels stove, refrigerator, water heater, but later models may be all-electric. Space heater burns oil.

HOME-CRUISER handles easily in traffic. Later models will have double wheels in rear. Cruiser is 21 feet long, nearly eight feet wide. Overall height is nine feet; ceiling, six feet three.

Three-Wheeler Eats Up the Miles on One Gallon of Gas

THIS British three-wheel car is said to cover 60 to 70 miles on a single gallon of gasoline and to attain a top speed of 40 miles an hour. The engine rides between the two wheels at the rear. About 10 feet long, 4½ feet wide and 4½ feet high, the car will seat two adults comfortably and provides plenty of room behind them for luggage or the weekly carton of groceries. It is the A. C. Petite, costs $1,114 in England.

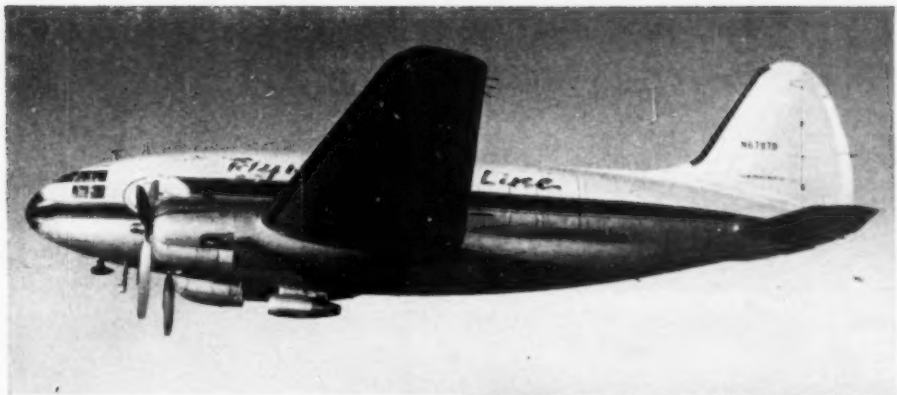
75 years ago this month

Popular Science Monthly reported:

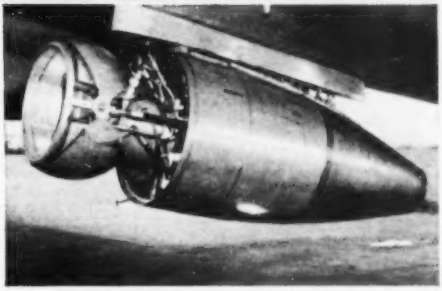
"MR. THOMAS BOND, assistant surgeon to Westminster Hospital, calls Urquhart, who introduced into England the Turkish bath, one of the benefactors of the age. This bath is, he says, stimulating and strengthening—a preventive as well as a curative in disease. Nor is this all: it promotes purity of mind and morals."

Machine Scores Pilots' Landings

TRODI—the touchdown-rate-of-descent indicator—tells jet pilots how fast they hit the deck of a carrier. An incoming plane intercepts light beams from a meter on a pedestal (left, above) and the computer has the answer when the pilot lands so that he can make corrections the next time around. North American Aviation devised the system to check new pilots and experimental planes.



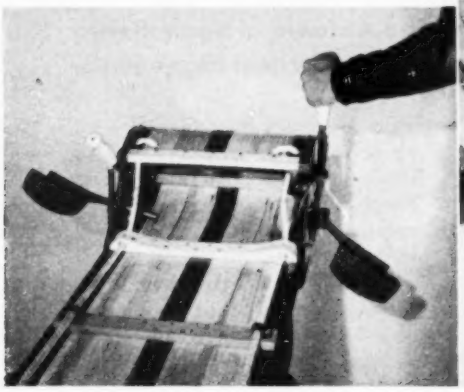
French Jet Gives Cargo Plane Power Boost for Take-Off

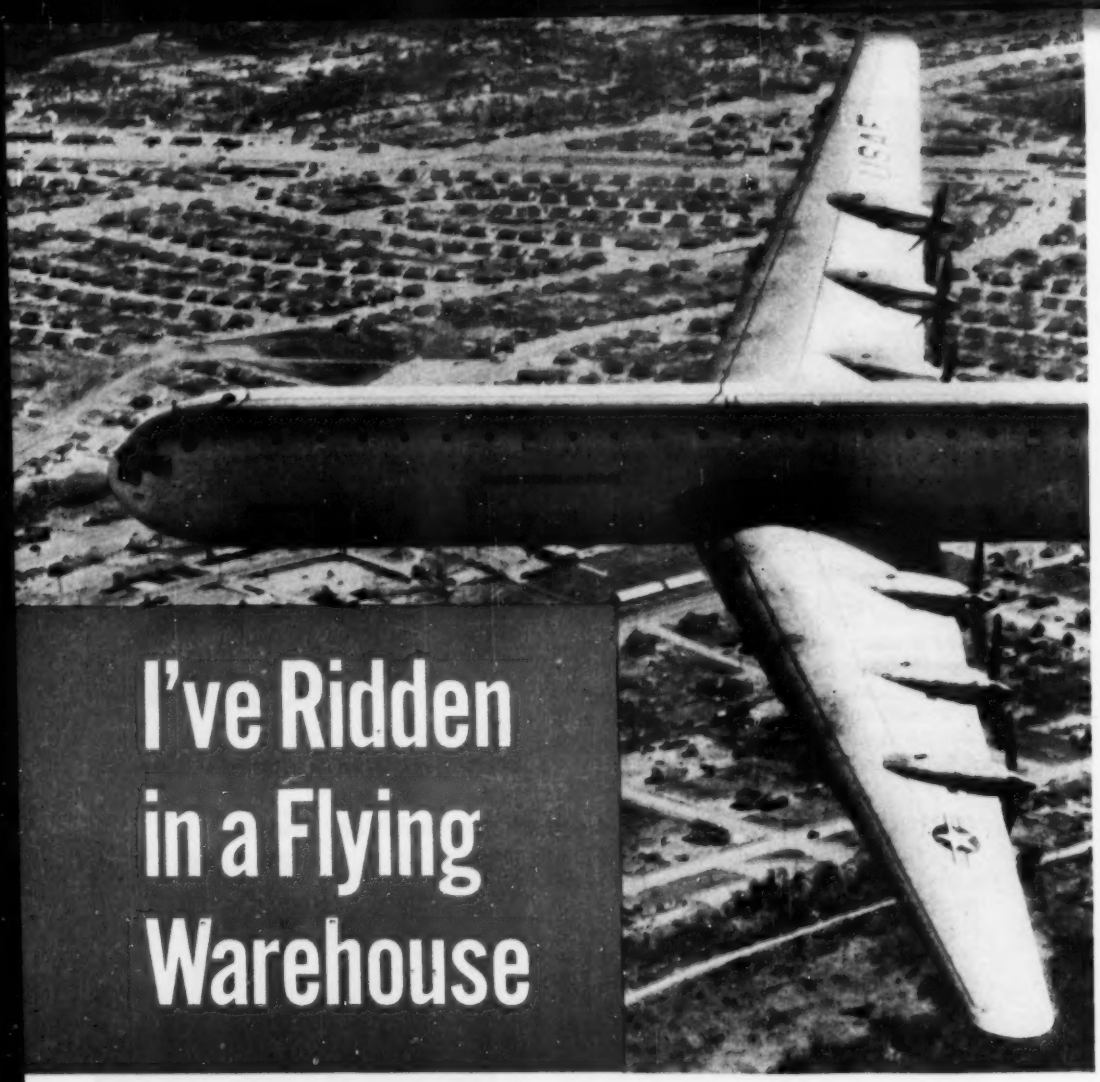


AIR freighters can carry heavier loads now, thanks to a small jet engine. Hung in a pod under the plane's belly, it is cut in to give a boost at take-off. And if an engine should conk out during flight, the little power package (right) lends a hand again. A French turbojet engine, the Marbore II was developed by the Societe Turbomeca. It is being used by the Flying Tiger Line.

Outrigger Paddles Brake Toboggan, Control Fast Turns

AFTER his family had a crack-up tobogganing, J. E. LaMarr of Torrance, Calif., devised the brakes shown below. A lever arm on either side of the toboggan pivots the braking fins to the side and downward, digging them into snow to a depth of 10 inches. This double action prevents a jarring stop that would unseat riders. Use of one brake makes steering easier. LaMarr is now marketing plans for constructing the brake.





I've Ridden in a Flying Warehouse

Wrestling 41 tons of freight from San Antonio to Sacramento is a breakfast-to-lunch job for the world's largest cargo plane.

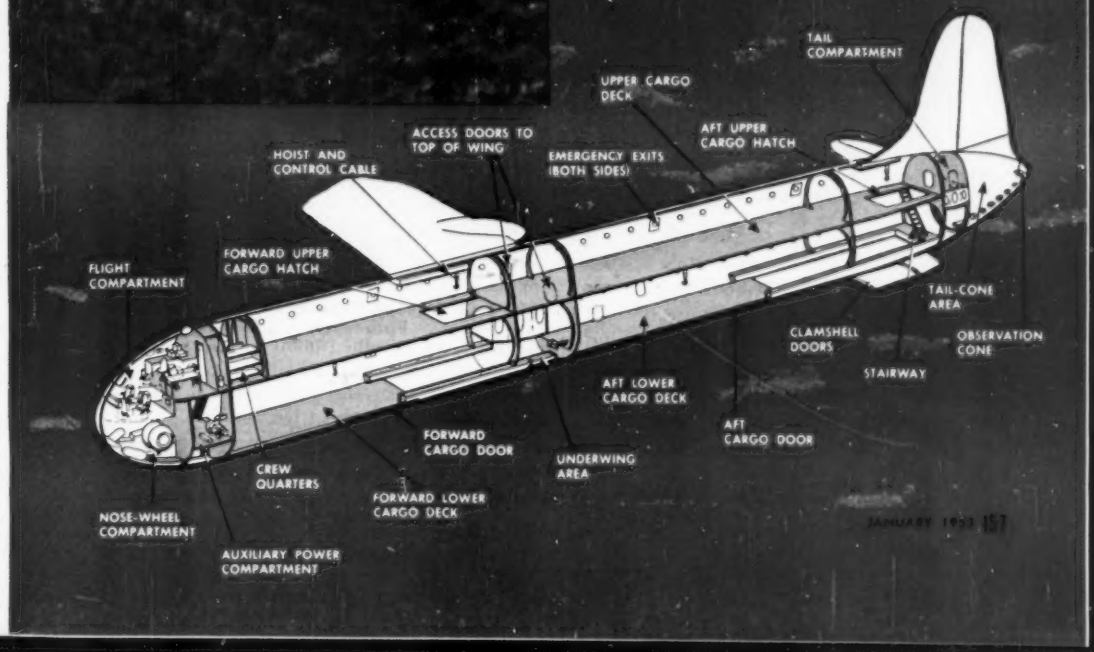
By Andrew R. Boone

LET'S hitch a ride—as I did recently—on the world's largest flying freight car: a warehouse on wings which has made more than 200 flights for a total of 1,650 hours, hauled more than 12 million pounds, and shattered a score of international records.

The plane is the Air Force's XC-99, a truck-horse version of the famous B-36 intercontinental bomber. Right now she's shuttling payloads between Kelly Air Force Base, San Antonio, and Sacramento, Calif., on a schedule that calls for two round trips a week.

Your first look at the huge plane isn't reassuring. Bathed in the blood red light of a Texas sunrise, XC-99 is a caricature of aerodynamic design. Poised on eight

JONAH'S WHALE was a [illegible] XC-99. Above is shown its large tail assembly that towers 57 feet 10 inches above the ground, 10 feet higher than its B-36 sister.



landing wheels straining under 147 tons of plane and cargo weight, her bloated fuselage seems far too large for the slender wing that splits her like a knife blade. The six 19-foot propellers strung along the trailing edge are reduced to the size of pinwheels by a 57-foot-high rudder assembly, and the whole ship looks as nose-heavy as a mallard with a goiter.

Fuselage Is Obstacle Course

You climb a ladder through the lower forward cargo hatch and find yourself on the first of the two huge decks. It is packed with war materiel—stuff that ranges all the way from airplane engines to garbage pails. Overhead are tracks for two of the four self-propelled hoists which are the muscles of XC-99's loading equipment. Each of them can lift and stow 10,000 pounds of freight at a clip.

You've been told that the fuselage volume of the flying freighter is equal to that of three average five-room homes. But home was never cluttered up like this. You edge your way past a part of the 82,146-pound cargo, climb through another hatch, and are in the crew's compartment. You park your helmet and oxygen mask, then open the narrow door that leads to the pilots' cabin.

Capt. James M. Pittard Jr. waves you to the jump seat behind him. It is nearly an hour before take-off time, but the flight crew is busy with countless checks. You want to get in on the act so you pick up your earphones and plug into the intercom.

Pilot To Copilot

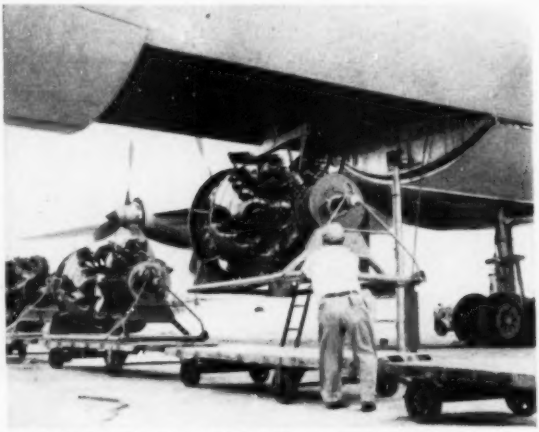
At 5:35 Captain Pittard orders the engines started. One by one, the six big Pratt & Whitneys take hold. Their roar is muffled as the propeller hubs are 85 feet —the length of a railroad coach—behind you.

Captain Pittard taps his mike, and through your earphones you hear him talking to his copilot, Capt. Leroy J. Johnson.

"Pick up your wing flaps, please . . . Watch your manifold pressures . . . Keep your hands on the throttles."

Checks continue as the engines warm up. At 6:15 Pittard bends the throttles and you pull slowly away from the ramp

DOUBLE DECKS have storage space equal to four boxcars. About 750 tons can be flown monthly on the San Antonio-Sacramento runs.



CARGO OF BOMBER ENGINES is no weight-lifting problem. Four special hoists built into the plane can handle 10,000 pounds apiece.

GARBAGE CAN and oxygen masks have nothing in common in the crew compartment. The pail is part of the cargo; masks are regular high-altitude equipment. Some of the freight handlers find breathing hard as the big ship outclimbs a sudden desert squall.

ASSIST from the autopilot is welcomed by PSM reporter Andrew Boone, who took over the controls 7,000 feet above New Mexico.

TO DISTRIBUTE WEIGHT, twin main landing gear have four small wheels each. Original single main wheels broke through some runways.

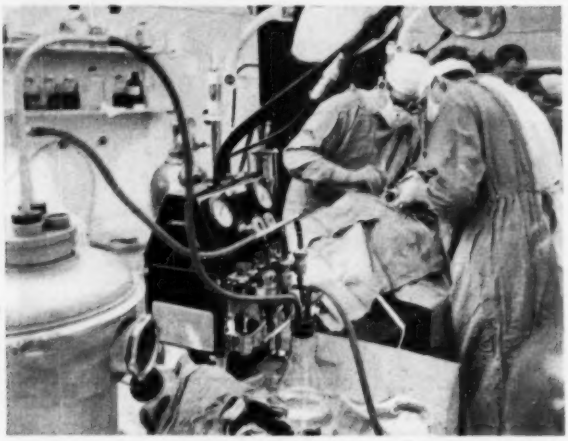
and onto runway 15. There's a 7,300-foot ribbon stretching away to the southwest in front of you, and another 300 feet to the rear. With her payload, XC-99 may need all the runway she can get.

"We'll take another 20 blocks," Pittard says. "Scanners, count 'em."

From their posts far aft on the lower deck, two sergeants look back through

[*Continued on page 280*]

Pump Does Human Heart's Work While Doctors Operate on It



A NEW mechanical heart recently took over the job of circulating a patient's blood for 50 minutes while his heart was operated on at Detroit's Harper Hospital (PSM, Dec. '52, p. 153).

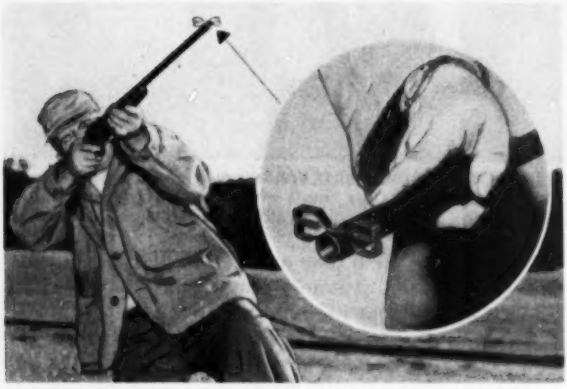
The pumping mechanism empties the heart of blood so that a surgeon can see the interior of the heart instead of depending on his sense of touch. Still in the experimental stage, the heart machine was built by a team of medical and engineering researchers from the General Motors Research Laboratories and the Michigan Heart Association.

Briefcase Dictating Machine Is Book Size, Weighs 12 Pounds

THIS bantam dictating machine, said to be the lightest ever made, weighs only 12 pounds. Slimmed down to less than 2½ inches, it can be slipped into a briefcase, and with a converter added, can be set to work in a car or plane. Regulation disks hold 30 minutes of dictation.

The microphone doubles for transcribing and a single knob controls the playback. The new VP Voicewriter is manufactured by Edison of West Orange, N. J.

Offset Sight on Gun Barrel Gives Correct Lead on Moving Target



AIMING a gun with the correct lead should be easier with this sight. It is offset on the barrel so that when the eye frames game in the sight area, the gun points ahead of the target. As long as the target is visible above the sight bar, the angle of lead is said to remain reasonably constant, regardless of the target distance.

Models that clip on rifles and single- or double-barrel shotguns are available. The Leed Sight Co., Navarre, Minn., makes the device.

CHEST-HIGH, the Pegaso 102 clears the road by a bare six inches. Twin outside exhaust pipes run just beneath the doors. One is visible at left below. Car is 13 feet four inches long.

Spanish Sports Car Hits 170 M.P.H.

This 'Flying Horse' with a choice of engines is reported to be as stable as it is fast.

ONE of the world's fastest sports cars is a newcomer from Spain, the Pegaso 102, named for the legendary flying horse, Pegasus. Its speediest model is credited with a top pace of 170 miles an hour, at the same time holding the road "like a train on a track."

Harold Radford, a British driver, told me he had guided a Pegaso down a wet, winding highway at 120 miles an hour without skidding, shifting into lower gears when he needed to slow down the car and using his engine for braking.

The Pegaso is powered by a compact

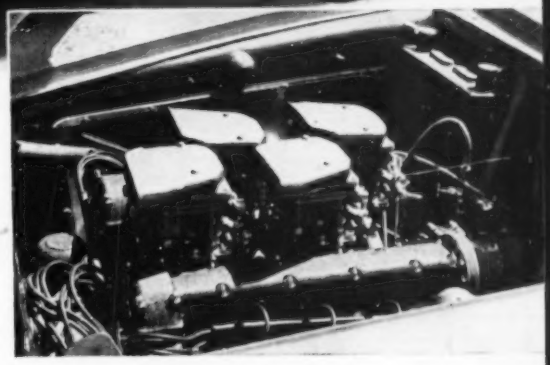
BROAD OF BEAM, Pegaso affords ample back view through one-piece transparent canopy. Rear end encloses spare tire and 39-gallon fuel tank.

FRONT-HINGED HOOD, in open position, reveals the top of a two-stage supercharger, which has enabled the 165-hp. engine to push the car up to 160 miles an hour in time trials.

V-8 engine with twin overhead camshafts and very short piston strokes. The engine comes in two sizes—a 152.5-cu.-in. piston displacement for a one-ton car, and a larger 170.8-cu.-in. displacement for a ton-and-a-half model. Both sizes are souped up on demand, but they perform impressively without it. Cars using the smaller engine, without supercharger, have been clocked at 120 miles an hour in tests in Spain.

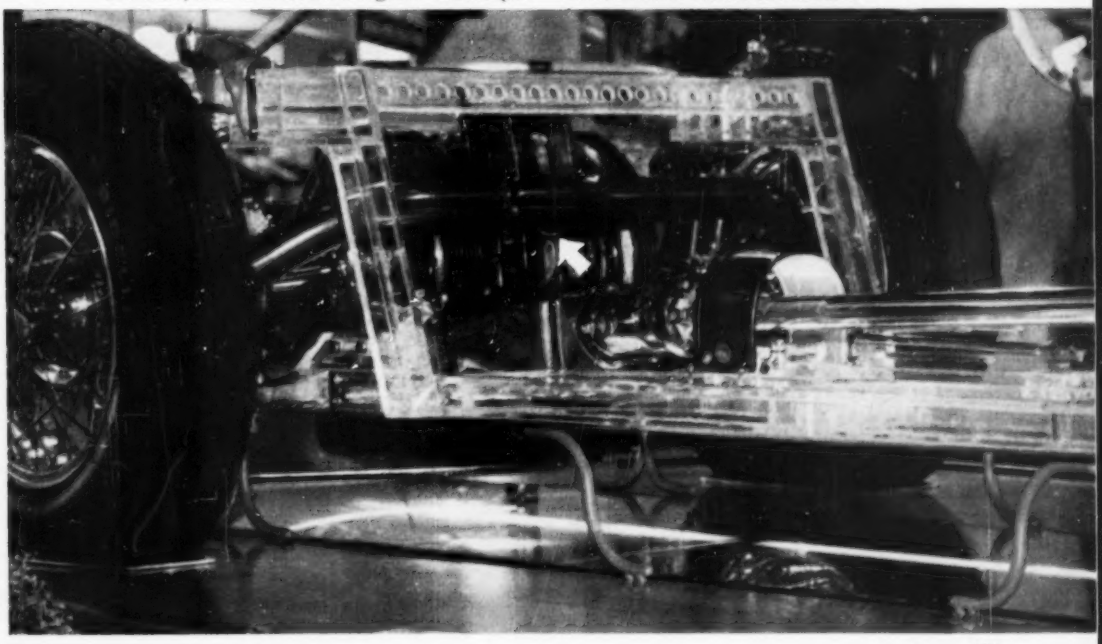
The Pegaso 102's hard-top two-seater, a cream-colored dazzler with a broad red strip running from its nose straight over the top to the rear end, made a great stir at the 1952 motor shows in London and Paris. At that time there were hardly three dozen Pegasos in the world. They are made in Barcelona by Empresa Nacional de Autocamiones, S.A., a government-subsidized private company.—*William McGaffin.*

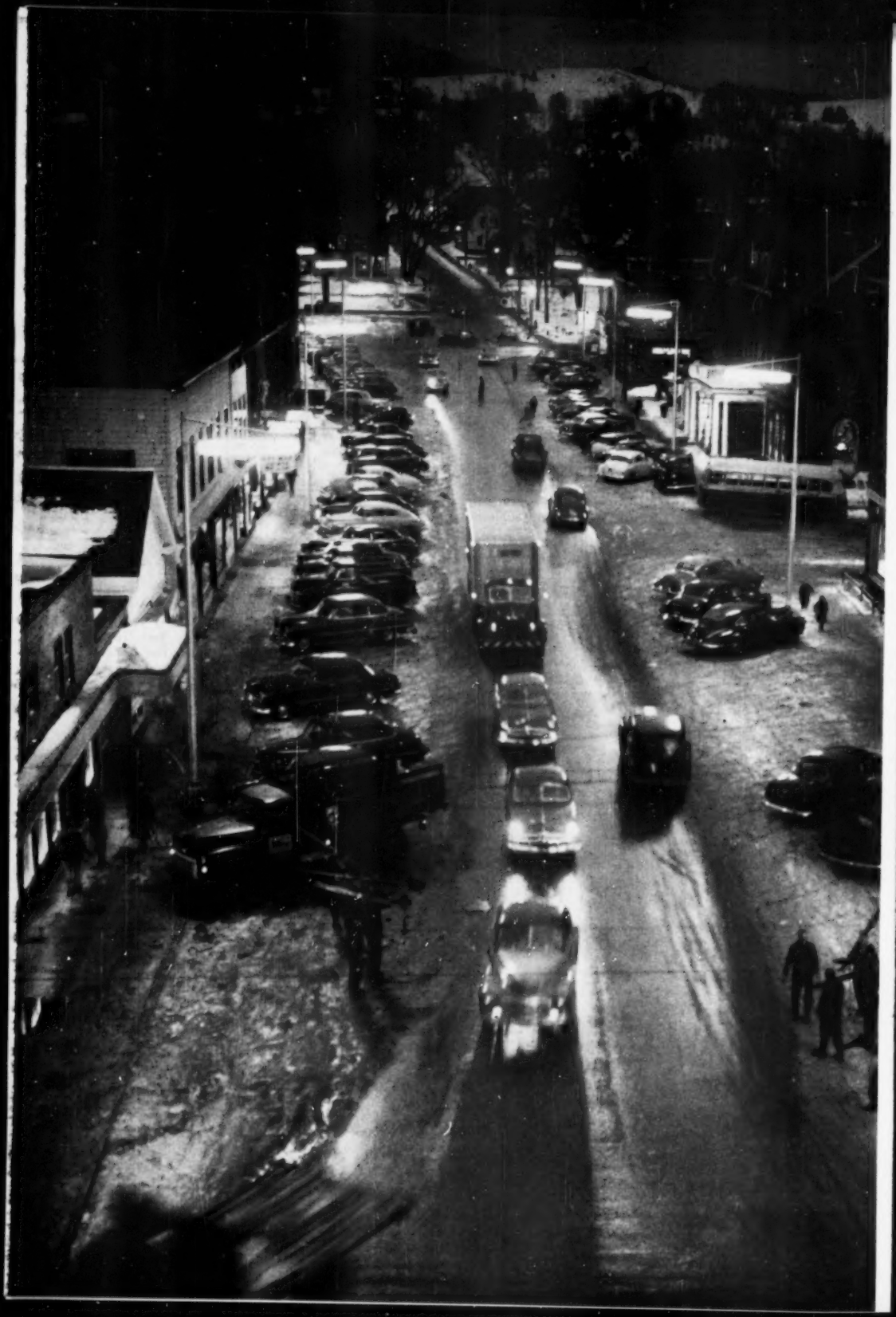
PUT YOURSELF in the driver's seat. That will cost you $8,000, plus ocean freight from Barcelona and U.S. duty. Next problem: Find a highway where you can cruise at 160 m.p.h. Accelerator (not shown) is as large as brake pedal.

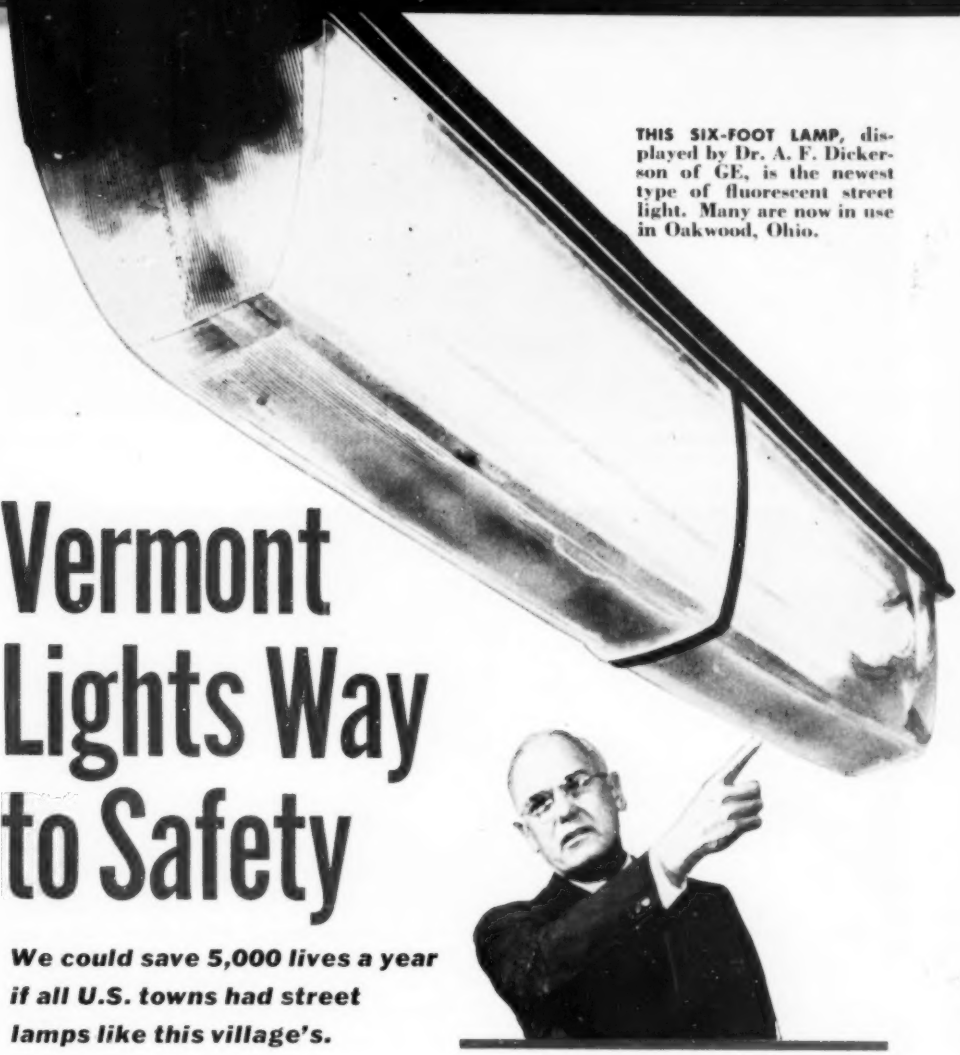


PLENTY OF HOOD for plenty of horsepower. The 2.8-litre model above was used to whet interest in London, where buyers would have to shell out $22,120 for a Pegaso 102. This model, which has no supercharger, gets its zip from four carburetors (right), mounted two on each side of the V-8, twin-overhead-camshaft engine.

SECRET of the ease with which the car holds the road is the tubular arch seen behind the transparent frame mockup below. Bolted to the axle, it is centered on a guide wheel (arrow) that slides up and down in a vertical channel. This allows spring play but limits sidesway by keeping the wheels always at a fixed distance from the frame.







THIS SIX-FOOT LAMP, displayed by Dr. A. F. Dickerson of GE, is the newest type of fluorescent street light. Many are now in use in Oakwood, Ohio.

Vermont Lights Way to Safety

We could save 5,000 lives a year if all U.S. towns had street lamps like this village's.

By Wesley S. Griswold

AFTER dark, people often drive miles to stare at the business section of Lyndonville, Vermont, a little town tucked away in snowy hills 39 miles south of Canada. That's because it has the most advanced kind of street lighting in the country—king-size fluorescent tubes that spread a cool, white, glareless glow so evenly over the thoroughfare and its sidewalks that you can easily read by it at any point along the street. The winter-night scene on the opposite page is dramatic evidence of this.

If all U. S. towns and cities had street lights as effective as these, we could prevent 5,000 to 10,000 traffic deaths a year, says Dr. A. F. Dickerson, General Electric's expert on street lighting.

Good street illumination makes a striking difference in accident rates. Kansas City has proved it.

In the average poorly lighted city there are four nighttime accidents for every one in the daytime. In 1945, in Kansas City, the ratio was nine to one. Kansas City then began to modernize its street lighting. By the end of 1951, with no more than three-quarters of the job done, the nighttime accident rate in that city had dropped until it was almost even

THE OLD LIGHTS on Lyndonville's main street were clusters of incandescents on low poles in midstreet. They provided "glaring globs of light with darkness in between."

THE NEW LIGHTS, installed in August, 1951, illuminate the center of Lyndonville like a show window and so evenly that there is no noticeable variation in intensity.

with the daytime rate. And after Cleveland had brought its street lighting up to date, its crime rate dropped a whopping 50 percent.

Incandescent lights, Dr. Dickerson says, are fine for residential districts, where less extensive illumination is required. Mercury-vapor lamps are excellent for flooding a relatively small area, such as a busy intersection, with brilliant light. But he would like to see fluorescents used to illuminate all main business streets and urban traffic arteries. Their light is soft, easy on the eyes and covers a large area.

American lighting engineers agree that, for the amount of illumination per watt, fluorescent lights are the most efficient. British experts claim that better illumination is obtained with 240 watts of fluorescent lighting than with 400 watts of mercury-vapor lighting or 750 watts of incandescent light.

An incandescent lamp lights when current passing through its tungsten filament causes the filament to become white-hot. A lot of heat is not converted into light and is wasted.

A mercury-vapor lamp lights when an electric arc passes through its high-pressure vapor, which glows as it is excited by the arc's stream of electrons. This produces more illumination per watt than an incandescent light, but a comparatively large amount of energy is wasted in the form of heat.

A fluorescent lamp is a lot like a mercury-vapor lamp, except that the va-

por it contains is under low pressure. When an arc's electrons pass through this vapor, the energy given off is largely invisible. That is, it *would* be invisible if the tube of the lamp were not coated with phosphor. Phosphor makes invisible energy visible.

A fluorescent light is the coolest of the three principal types, converting its energy into illumination with the least waste. Lyndonville's fluorescents provide nearly three times as much light as the incandescents that they replaced—*and on the same amount of current.*

Lyndonville was the first community in New England and the second in the U. S. to install fluorescent street lights. Detroit had them in one portion of an outlying business district shortly before Lyndonville was ready. Oakwood, Ohio, a suburb of Dayton, just recently switched on the largest main-street installation of fluorescents in the country.

Bright as a Five-and-Dime

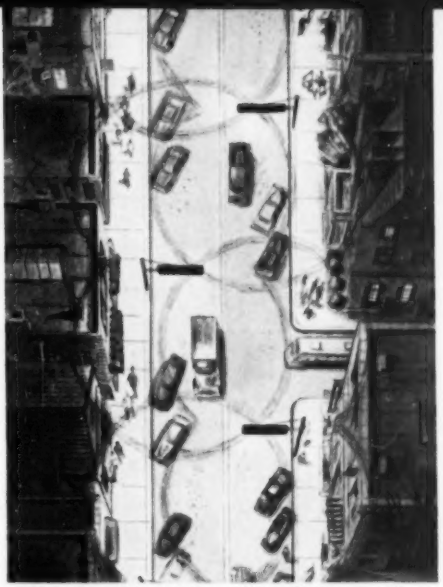
Lyndonville's new lights, which, one long-time resident and storekeeper said, "make Depot Street as bright as the inside of the five-and-ten," are 28 feet above the pavement. They are eight feet long and stretch out at right angles to the street on the arms of 30-foot aluminum poles.

Each fixture contains two pairs of eight-foot bulbs. Behind each pair is a highly polished reflector, and the reflectors are mounted back to back. The lights, which have a life of about two years, shine out through clear-plastic windows.

No Dark Patches

The great length of these bulbs is one of the chief reasons for their excellence as street lights. The source of light is so wide that the paths of illumination from lamps on opposite sides of the street, even though they are directed up and down the street rather than across it, largely overlap. (The diagram on this page shows how.)

There are no dark patches anywhere on pavement or sidewalk. Pedestrians and cars are perfectly silhouetted against soft white light that is easy on the eyes of approaching drivers. This is an important safety factor.



SECRET OF SUCCESS in spilling light over Lyndonville's main street lies in the way the figure-8 patterns of illumination from the staggered fluorescent fixtures overlap.

Fluorescent fixtures for street lighting cost about twice as much as other types. But their efficiency apparently makes up for the high initial cost.

"Over a period of 10 years," Lee Gray, manager of Lyndonville's electric-light plant, declared, "I figure our savings in current and bulb replacement will completely offset the higher cost of the light fixtures."

Lyndonville merchants whose stores line Depot Street are unanimous in their praise of the fluorescent street lights. Some claim the lights have increased their business.

The only dissenting voice I heard was that of a tired old carpenter who was leaning against a store window while he waited for a bus to arrive through the falling snow.

"It's all right to have Depot Street as bright as day," he said without enthusiasm as he glanced up at the fluorescent light above him, "but the trouble is it makes the side streets we live on seem as dark as back alleys." END

He Tames Avalanches

A veteran snow ranger's ideas are used to save lives by U.S. slide-forecasting station.

By James Nevin Miller

BY HURLING 75-mm. shells at snow-piled slopes in the Wasatch National Forest, gunners start man-made avalanches so that skiers will not be trapped and buried by unexpected slides later.

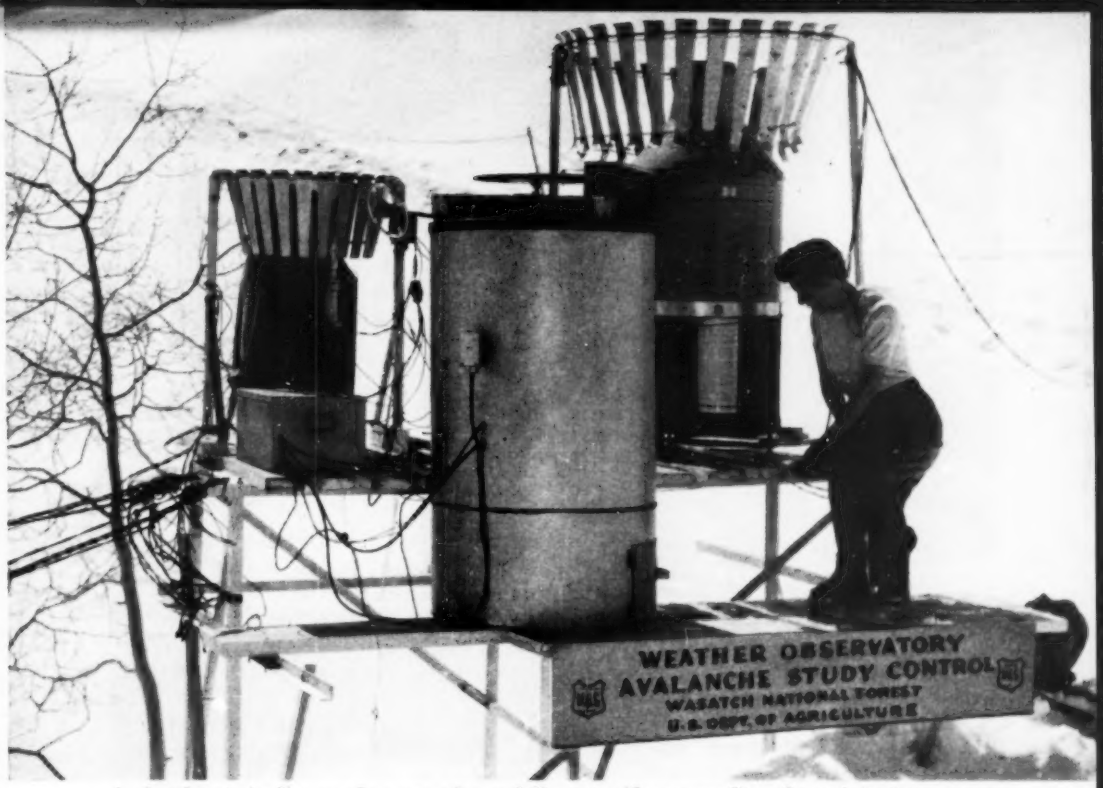
Army-style strings of demolition charges and individual blocks of high explosives are other novel items of equipment in use at America's first avalanche forecasting station, recently set up on an 8,300-foot mountain peak at Alta, Utah.

To safeguard visitors to this skier's paradise, a corps of "avalanche busters" has been trained since early 1951, under the direction of six-foot Monty Atwater—veteran snow ranger, Army ski-troop officer in World War II, and now safety director of winter sports at Alta.

Gauges Record Snowfall

As a snow ranger, Monty developed a method for predicting snowslides, and his ideas have been embodied in the forecasting station he helped to plan. Much of its pioneer equipment he designed himself.

Its recording devices operate 24 hours a day without need of attention. Three of them perch on a spindly tower. A device resembling a phonograph on a barrel measures rate of snowfall. When an inch of fresh snow covers its slowly revolving



Avalanche station's tower has rate-of-snowfall meter (foreground) and precipitation gauges.

turntable, an electric eye flashes an impulse to an automatic recorder in the heated ranger station 150 yards away, and a brush sweeps the turntable clear for another measurement. Two precipitation gauges, one direct-indicating and the other wired to the indoor recorder, melt the fallen snow and show its moisture content.

A new "hazard chart," a revolutionary development in avalanche forecasting, takes into account these instruments' readings and other data—wind speed and direction, temperature fluctuations, previous snow depth. "When the hazard scale gives us a score of what we call 'plus three,' we know the avalanche situation is dangerous," Monty says, "so we shut down ski trails in the danger zone."

Shooting Down Snowslides

To get potential slides out of the way, the rangers have successfully tried high explosives. When hand-placed charges

INDOOR RECORDER at Alta, Utah, station is electrically wired to array of instruments outside. By combining their readings, its moving paper chart warns of avalanches in the making.

WEAPONS in avalanche fighters' arsenal include strings of high-explosive demolition charges and 75-mm. shells (above) to give potential snowslides a deliberate start and get them out of the way. Demolition charges are laid atop snow, set off electrically (left).

can be used, they employ tetrytol—a military demolition agent more powerful than TNT—in half-pound blocks or chains of sticks. At snowcaps beyond reach, their artillery fires 75-mm. high-explosive shells.

Rangers at Alta recognize several types of avalanches. Those of dry snow are fast-moving, quick-spreading, dangerous if large—but usually start before much snow builds up. Moist slides, slower and heavier, give an alert person time to get away. Their chief threat is to buildings.

Most dangerous are "slab" avalanches. An unstable slab of snow, typically dull and chalky in appearance, may remain poised almost indefinitely—then suddenly give way. Movies of a slab avalanche show practically a whole slope in motion at once. Caught in one, a skier has virtually no chance to escape.

While slide victims have survived 72 hours' burial in the snow, usually anyone not killed outright soon perishes from suffocation, shock or exposure. Hence, the need of quick and expert rescue work, for which Alta's training is considered tops.

Alta Pays Off in Lives

Once Alta was notorious as a graveyard for avalanche victims. Since the Forest Service set out to tame the slides, only two skiers who defied warning signs have met with an accident. One was killed, the other rescued.

So well is Alta's slide-forecasting station paying off that it has set the style for other skiing centers and two stations like it have been set up since, one at Stevens Pass, Wash., the other at Bethoud Pass, Colo.

"SLIDE AREA" SIGNS, set up by rangers whenever field tests and forecasting instruments show an avalanche threatens, save lives by warning skiers away from danger zone.

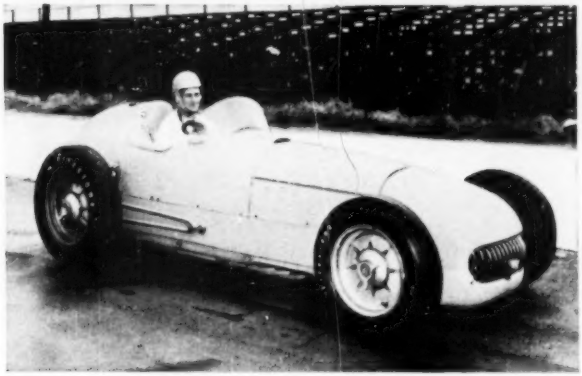
RESCUE TEAMS practice probing with poles for dummy, hidden beneath snow, and digging it out. Quick work saves buried slide victims from death by suffocation, shock or exposure.

Biggest 'Copter Heads Upstairs

HERE's the largest helicopter ever built in this country—the XH-17. Looking like some weird insect with its four dangling legs, it is shown shaking the dust from its wheels for its first extended test flight.

Two GE turbojets spin the blades which measure over 125 feet from tip to tip. Height of the Hughes craft is more than 30 feet. The Air Force expects to use big 'copters to lift and deliver heavy artillery, bridge sections and trucks.

Chrysler-Powered Racing Car Does 135 M.P.H. for 140 Miles



THIS racing car whizzed over Indianapolis Speedway straightaways doing 170 m.p.h. in test runs and logged an average of more than 135 m.p.h. for 140 miles. The official Speedway record for 100 miles, held by Bill Vukovich, is 133.008 m.p.h.

A Chrysler V-8 engine, producing more than 400 hp. without supercharging, gives the car its zing. R. G. Wolcott is the owner and Joe James the driver.

Model Blimp Flies to Help Recruit Navy Air Cadets

A BABY blimp has taken on a full load of helium for a take-off to help recruit Naval Aviation Cadets. A miniature ZP2K airship (right), it is powered by two model-plane engines in outrigger nacelles.

The cabin houses a radio-control receiver and mechanisms for moving elevators and rudder. Lt. John Kane of the Naval Air Station, Lakehurst, N. J., fabricated the gas bag. Ray Benton, a professional model maker, built the cabin and tail.

WINNER COPS THE FLAG at Juarez, northern terminus of Mexican Road Race, after covering treacherous 1,934-mile course in elapsed time of 18 hours 51 minutes 19 seconds.

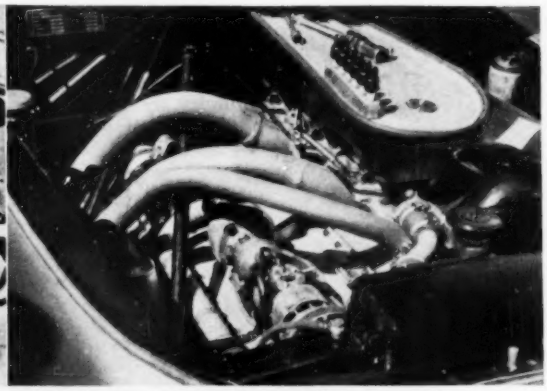
Mercedes Shatters Road-Race Record

AVERAGING 102 miles an hour for almost 2,000 miles, a light Mercedes sports car blew the previous 88-m.p.h. record to bits in the 1952 running of the world's toughest speed test—the Mexican Road Race. Karl Kling of Stuttgart, Germany, piloting a Mercedes 300 SL, raked in the winner's chips—$17,442. Another Mercedes was second.

Stock-car honors went to America's most powerful production automobile, the 1953 Lincoln (see p. 110), which took the first *four* places. Chuck Stevenson, AAA champ from Fresno, Calif., was first, averaging 90.

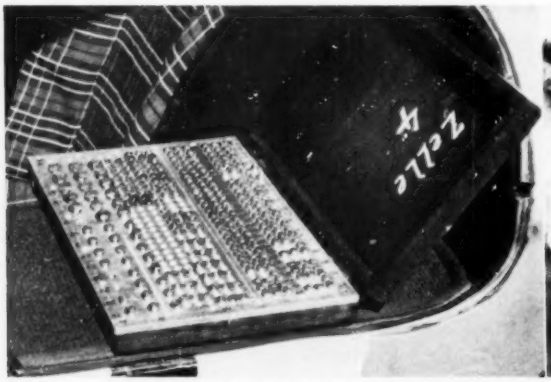
Of the 27 sports cars and 55 stock models that roared out of Tuxtla Gutiérrez, near Mexico's southern frontier, on Nov. 19, 43 never reached the finish at Juarez, across the line from El Paso, Tex. One driver was killed, 14 cars wrecked, the others forced out by mechanical failure. Mercedes, which also won the big Le Mans race in France last summer, appeared to be making good its boast of supremacy in road racing.

BARS FOR THE BIRDS. Karl Kling, the winner and new champion, looks out through bars installed on his Mercedes to protect him from buzzards flying into the windshield.



CLOSE-UP OF 173-HP. ENGINE that powered German racer. Bosch spark plugs lined up on air cleaner were removed for prerace tune up. Car has three Weber carbs.

LIVESTOCK WOULDN'T STAY ALIVE LONG—and neither would the racers—if sheep and cattle were not shooed off road. Race route was guarded by 50,000 Mexican soldiers. Open Mercedes above was disqualified when driver returned to starting line for adjustments.

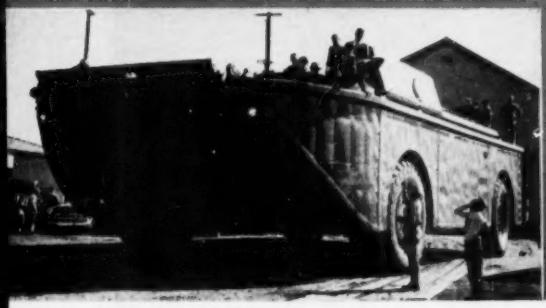


WITH TYPICAL GERMAN THOROUGHNESS, the Mercedes team brought along several hundred carburetor jets, to permit every possible adjustment for different altitudes.

ZIGGED WHEN HE SHOULD HAVE ZAGGED. Felice Bonetto tells how he went off road, wrecked car. He wasn't only one who ran into bad luck—only 39 of 82 finished race.

Army Amphibian Has One Motor per Wheel

BIG enough to deliver the latest medium tank from ship to shore, this new 60-ton amphibious cargo carrier for the Army dwarfs the World War II Duck. Over-all length is 61 feet. Afloat (right), twin screws propel it; on land (below), an individual 165-horsepower Diesel engine turns each of the monster's 9½-foot wheels. It's called the Barc (Barge Amphibious Resupply Cargo.)



It's Low, Wide and Gold

LOWEST and widest sports car ever built—that's what Johnny Campbell and Elbert Dooley call their gold-painted Cado (below.) The two Cleveland mechanics built the chassis and six-foot-wide steel body around a 160-horsepower Olds engine. The Cado is so low—clearance, nine inches; height, 36½ inches—that the driver can step over the side when the top is down. The car is valued at $4,500.

Plastic Streamlines Rocket Pod

THE plastic cover below, being slipped over the nose of a wing pod on the Lockheed Starfire, disintegrates a split second before the rockets fly. Gas pressure of the burning propellant blows it apart. The wing pod, which packs a dozen 2.75-inch rockets, is one of a pair being added to the jet's armament. These "side arms" double the plane's firepower—it carries two dozen rockets in its nose.

Cops Get Pocket Radio

SMALLER than a cigarette carton, the outfit below is a self-contained radio transmitting station for policemen, firemen and railroaders. A loop antenna doubles as a carrying handle for a case holding microphone, dry cells and eight tubes with a printed circuit. Weighing less than two pounds, the Motorola-made set operates on a frequency range of 152 to 174 megacycles and has a range of five miles.

They Say Now.....

"The eradication of tuberculosis is not inconceivable."—DR. E. H. ROBITZEK, ANTI-TB-DRUG PIONEER.

"There is a possibility of a quite appreciable change in the world's climate [to dryer and warmer] in 25 to 50 years."—DR. C. E. P. BROOKS, BRITISH METEOROLOGIST.

"More trained workers are needed to investigate the still unsolved problems of public health."—BRIG. GEN. JAMES STEVENS SIMMONS, DEAN, HARVARD UNIVERSITY SCHOOL OF PUBLIC HEALTH.

"It is now possible to have a complete 'family' of atomic weapons, for use not only by strategic bombers, but also by ground-support aircraft, armies and navies." —GORDON DEAN, CHAIRMAN, U.S. ATOMIC ENERGY COMMISSION.

P.S.

Last minute news & notes...

ATOMIC POWER on a commercial scale will come sooner in England than here, predicts the "Wall Street Journal," New York business newspaper. It's not that U.S. research lags behind Britain's--the reason is economic. With conventional power more expensive there than in this country, A-power doesn't face as stiff competition. Construction is expected to begin within a year of a British atomic-power plant with a capacity of 150,000 to 200,000 kilowatts, enough to supply a good-sized city or to propel the liner Queen Mary.

HEARTS THAT HAVE STOPPED BEATING have been started again by a "thyratron stimulator," a newly perfected medical aid that prods the muscles to action with timed electric impulses. In one life-saving case reported, it kept a patient's heart pumping for five days before normal heartbeat resumed.

ENTIRELY NEW DEVELOPMENTS since World War II make up 60 percent of all ordnance items the Navy is now buying.

WILL TAPE RECORDINGS, some day, supplant disk phonograph records? What might be a pioneer step in that direction is appearance on the market of sound-tape records--"Magnecordings by Vox"--of major orchestras with noted conductors and soloists. They're made at standard 7½-inch-per-second speed, and priced according to length (a full hour's program costs $9.95) by MaVoTape, Inc., 225 W. Ohio St., Chicago.

A GAS-TURBINE POWER PLANT ON RAILS will be built for the Army Corps of Engineers by Westinghouse. First of its kind, the 5,000-kilowatt mobile generating station will travel on two railway cars.

SKYWRITING IN COLORS recently made its debut over New York with an advertising message in yellow smoke. It's done by flushing oil and a dye into the plane's exhaust.

DID AN H-BOMB GO OFF at Eniwetok Atoll last November? Unofficial consensus, based largely on eyewitness accounts, was that one did. The AEC wasn't saying. Only official statement, more guarded than some of the headlines it inspired, was that the tests included "experiments contributing to thermonuclear weapons research." Actually those were exactly the same words that the AEC had used after its "Greenhouse" tests a year earlier, PSM files revealed.

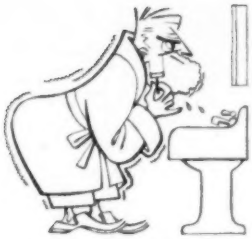
WASHING CLOTHES IN COLD WATER will be possible with detergents of the future, predicts a leading soap maker's chief chemist, N. W. Ziels of Lever Brothers Co. Then washing machines won't tax the limited capacity of some home water heaters.

DO LIE DETECTORS tell the truth? Experts are almost evenly divided as to whether polygraphs are reliable enough for courtroom use, according to a survey by two University of Tennessee professors. But use on criminal suspects before trial and on key business and governmental personnel won four-to-one approval from 700-odd psychologists, criminologists and personnel officials.

BOTH HEAT AND COOLING are offered by a new window-type air conditioner for year-'round use. Its heating element warms the air and takes the chill out of a room on cool spring and fall days, when central heating is not in use, and in winter before the heat comes up. Maker is the Mitchell Mfg. Co., Chicago.

A TRIP TO THE MOON with Long Beach, Calif., as its point of departure is proposed by members of the Pacific Rocket Society. To build the rocket, they suggest that the city provide a modest $1,000,000, from its oil-royalty fund of $130,000,000. The moon journey, they argue, would be "a dramatic gesture to replace the present annual 'Miss Universe' beauty carnival."

The Editors



Like homeowner John Kirby, you can install a sheet of conductive rubber that will supply radiant heat for that extra bit of warmth.

Electric Ceiling Heats His Bathroom

IF YOUR bathroom needs supplementary heat to drive away goose pimples, you can supply it by hiding an electric heater in the ceiling.

The flip of a switch then will let you bathe and bask in the warmth of radiant heat. The heater itself is a most unlikely looking object—a rubber panel, no thicker than heavy cardboard, with an electrical junction box jutting from the corner of one

1 HERE'S THE HEATER—a 36" by 48" Uskon panel. The 115-volt type can be connected to the conventional 20-amp. house circuit. Note junction box at upper left corner.

surface. Carbon black makes the rubber electrically conductive.

The U. S. Rubber Co. introduced these Uskon panels five years ago (PSM, April '48, p. 122). Since then, the rubber ceiling panels have been installed as the only heating system in many homes located in areas with low electrical rates and mild winters. Where rates are high, operating costs make other home-heating systems more economical.

That extra bit of heat. Wherever you live, a single Uskon panel adds up to a lot of sense dollar-wise if all you need is supplementary heat. John Kirby, who installed a panel in his bathroom ceiling by the techniques shown in the accompanying photos, wound up the job for about $35. Used only when needed, the heater does not add ap-

2 PAINTING IS EASIER if done before panel is installed, so John Kirby put on a prime coat as first step in installing a panel in the bathroom of his home in Mount Vernon, N. Y.

3 PANELS WERE HUNG by drilling and countersinking holes for No. 8 flathead screws at 8" intervals. Holes were aligned ½" from edge. Space 1½" from edge is nonconductive.

4 AFTER CUTTING ceiling hole, Kirby nailed up ¼" plywood and hardboard shims to bring thin Uskon down to level of ceiling material. Hole was cut in one piece for junction box.

5 PANEL WAS SUPPORTED with a T formed from scraps of lumber while 1¼" screws were driven. Screws are countersunk to allow use of molding to cover the joint.

6 WIRING WAS DONE FROM ABOVE, although connection might have been made from below before panel was raised. The entire area was insulated with mineral wool 4" thick.

preciably to the electric bill for his home.

Standard Uskon panels draw 22 watts to the square foot. They come in 115 volts for supplementary heating (these can be wired to ordinary 20-amp. household circuits) and 230 volts for heating large rooms or whole houses. Thus, the 115-volt, 36″ by 48″ panel that Kirby used draws 264 watts—little more than a refrigerator, which runs far more frequently than you normally would use the heater.

Installing a panel as Kirby did is little more difficult than putting up a piece of wallboard. You must cut a hole in the ceiling—or wall if you want the heater there—to suit the size of the panel, usually 36″ square or 36″ by 48″. The panels cannot be cut.

Insulation is a must. A unit without insulation behind the panel is wasteful of heat. Most paints, including water-based ones, will cover Uskon, but with oil paint it is best to prime first with shellac or aluminum paint. Wiring consists only of running a cable from the house circuit through a wall switch or thermostat to the two binding posts in the junction box on the panel.

A new thin type of Uskon that U. S. Rubber recently announced (see next page) is also comparatively easy for the homeowner to install. This is simply cemented in place. You could install it over plasterboard or other rigid material or over an existing plaster ceiling if it is fairly smooth.

Thin panels cost less. With 4′ square panels of the original type costing $30 each plus freight from Passaic, N. J., installed costs have been high. The usual figures per square foot of house area have been $1 to $1.25 in the South and California, around $1.50 to $2 in such areas as Chicago and the East Coast.

How to Estimate the Cost of Electric Heat

Electric heat is clean, pleasant, safe, easily controlled and takes up little space. In one or another of its forms it can be installed at costs not out of line with other heating.

But big power bills can take the joy out of it. And make no mistake: unless your electric rate is fairly low and your house is thoroughly insulated, its operating cost can be far higher than other systems.

The following formula will give you an estimate of the annual cost of heating your home with electricity:

1. Find the cubic footage to be heated: length times width times height of the space in your home.
2. Ask the weather bureau or utility company for the average number of degree days in your locality. A degree day is a standard of measurement for heat requirements.
3. Multiply the degree days by the cubic footage, multiply this product by three, and divide the total by 10,000.
4. Multiply this figure by your kilowatt-hour rate and the result will be an estimate of how much it would cost to heat your home per year.

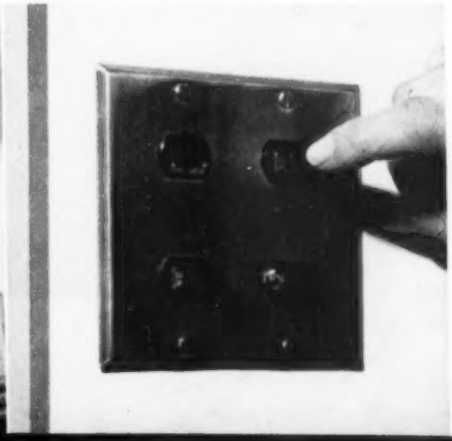
In contrast, a 4′ by 8′ panel of the new type (including the raceway) sells for $34.50 plus delivery. With this type, contract figures are expected to run 30 to 40 percent below former costs.

Both types of Uskon will remain on the market. The original, which has a ¼″ backing sheet of asbestos cement, will be used primarily in special installations where rigidity is required, for instance in some factories or office buildings.

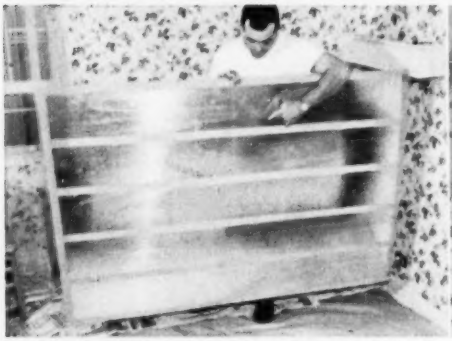
Please turn the page for more on ceiling heat.

7 A FINAL COAT OF PAINT and you would never know the heater was there. Uskon panels should be spaced 1/16″ from each other or rest of ceiling to allow for expansion.

8 SWITCH AND PILOT-LIGHT UNIT was installed in wall to control heater for short-period use. For steady heat, a thermostat could be substituted for wall switch.



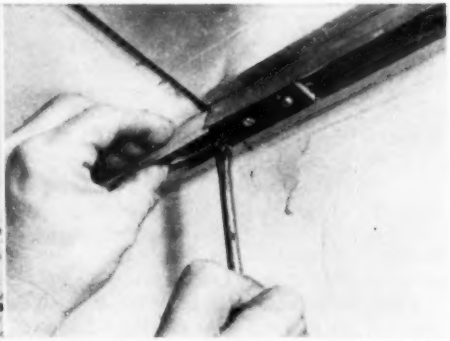
New Kind of Rubber Heat Panel Is Lighter and Costs Less



NEW USKON PANEL just introduced by U. S. Rubber Co. looks like this when it comes from factory. Called Type T (for thin), these panels are lighter and less expensive than rigid ones in use in recent years.

ADHESIVE IS USED to install thin heat panel over any smooth, rigid surface. Liquid adhesive is applied in strips to correspond to strips on panel. Panel is then pressed into place and a roller used to make it tight.

PAINT IS APPLIED with a roller or brush. New type of Uskon is so thin that a supplementary heating panel like this one becomes inconspicuous when painted to match ceiling. No molding is needed as for older type.



WIRES GO INTO NARROW RACEWAY where edge of panel meets wall. A cover is then snapped on to conceal the wires. A raceway is included with each Uskon panel. Wiring supplies are standard and may be obtained anywhere.

Types of Electric Heat and Characteristics of Each

Space heaters. The cheapest to buy, these work well in mild climates. Convection types may not distribute heat evenly enough in cold weather. Those with fans make some noise.

Radiant glass panels. Although taking up considerable wall space, these produce radiant heat that is clean and comfortable. They usually respond quickly to changes in outdoor temperature. New narrow baseboard types fit into many rooms where the ordinary wider types are not feasible.

Resistance wire or cable. Buried in plaster ceilings, walls or concrete floor slabs, these are invisible and take up no house space. The installation cost is comparable to that of good warm-air systems. This type of heat, particularly if used in a slab, may be slow in responding to rapid temperature changes.

Rubber panels. These and other prefabricated panels for ceiling use have generally been the most expensive to buy, although lower costs promised for the new Uskon may level this out. The panels are so thin that they heat up in a matter of minutes and cool off just as fast, avoiding the lag that is a disadvantage of some other radiant heating systems.

Baseboard convectors. These are a comparatively new development. A baseboard around the room contains resistance wires that heat air as it passes through. Some types use fins or coils to expose a greater heating surface to the air.

67 Lb. Give 20 Hp.

MECHANICALLY controlled intake poppet valves and an automotive-type fuel pump are incorporated in a twin-cylinder, 20-hp. motor weighing 67 lb. that was introduced at the New York boat show.

A control knob on the instrument panel permits the operator to switch the fuel supply from the motor's five-quart tank to a six-gallon auxiliary tank. The diaphragm pump—operated by exhaust pressure—in the power head moves fuel from the auxiliary tank, eliminating the need of air pressure in the tank.

Throttle control as well as the gearshift for forward, neutral or reverse are built into the steering handle. For remote control, the steering handle is removed and a plug-in attachment substituted. The motor also has a vertical stern adjustment that permits trimming from within the boat while it is slowly under way. Specifications include: bore, 2½"; stroke, 2 1/32"; piston displacement, 19.94 cu. in.; stern height, 15". *Martin Motors, Eau Claire, Wis.*

Motor Has Auto-Type Hood

AN ACOUSTICALLY tuned carburetor silencer and a water-sealed exhaust reduce the noise of this two-cylinder, 15-hp. motor by 20 percent, muting most high-frequency noise, according to the manufacturer.

For routine motor inspections and servicing, the port side of the hood can be raised (above) to a vertical position. The complete cover assembly can be lifted off after two screws on the starboard side are removed. Ignition and carburetion are synchronized in the steering-handle grip. A gearshift permits the motor to be started in neutral and then put into forward or reverse. *Evinrude Motors, Milwaukee.*

Foot Controls Trolling Motor

SLIGHT movements of one foot control this electric fishing motor. To steer it you push the pedal down or let it up; to change speed you tilt the pedal left or right. An auto battery powers the two-speed, 3-hp. motor, driving it for about 1½ days' fishing on one charge.

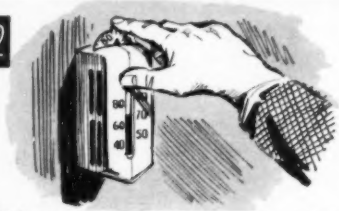
The motor can be clamped either on the transom or the side of a boat (above), where it will move the boat forward, backward or to either side. The electric unit can be folded up into the boat while an outboard takes you to your fishing grounds, then lowered to move you from spot to spot. *Silver Creek Precision Corp., Silver Creek, N.Y.*

IF Your Oil Burner Stops...

1

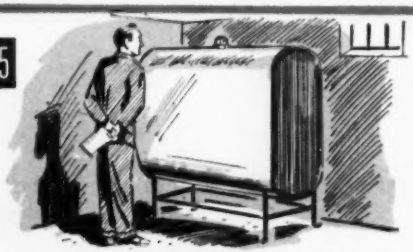
Try the lights to see if the house current is on. Servicemen will tell you that they always get calls when the power fails.

2



Make sure room thermostat is set at least 3° above room temperature. A burner may not operate otherwise. If you suspect the thermostat itself, remove cover and blow out any dust. If points are dirty, clean them gently by drawing plain paper between them.

5

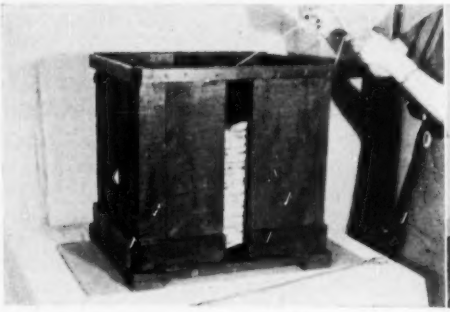


Be sure you have oil. If not, remember you may have to prime the pump after oil is obtained. The delivery man usually will do this. Also check the oil valve at the tank and the one at burner if there is one. Both must be on.

6

If it's a steam system, the low-water cutoff may have stopped the burner. Water in the gauge should be about halfway up at all times. The burner should start automatically when the correct water level is restored.

Baler Bundles Old Newspapers into Neat Package for Junkman



Before I made this baler the storage of old newspapers between pickups by the junkman was always a problem. The front and both ends of the box are hinged to the base, and screen-door hooks hold the ends to the front and back.

Four blocks nailed to the bottom of the baler provide space through which a cord for tying the papers can be drawn with a wire hook. After the box is filled, string is pulled through slots in the box panels and tied. Then sides and front are let down and the bale of papers removed for pickup. —*T. L. Stalker, Flint, Mich.*

Make these eight checks before you call in the repairman. If the trouble is minor, you'll save by finding and fixing it yourself.

3

See that master switch controlling the burner is on. A member of the family, perhaps a youngster, may have turned it off.

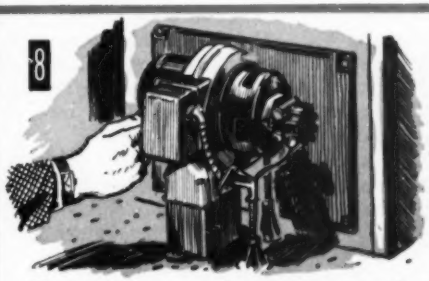
4

Check the fuses in the house fuse box and in the burner switch box. If a fuse is blown, replace it with one of equal amperage.

7

Press safety recycling button on the stack relay attached to the smoke pipe after making previous checks. (Open furnace door to relieve possible pressure build-up from oil fumes and stand away from door as you press the button.) If a normal flame appears but burns only a few minutes, remove the stack-temperature unit and gently clean soot off the end inserted in the pipe. Replace and press button again. If flame doesn't continue, call a repairman.

8



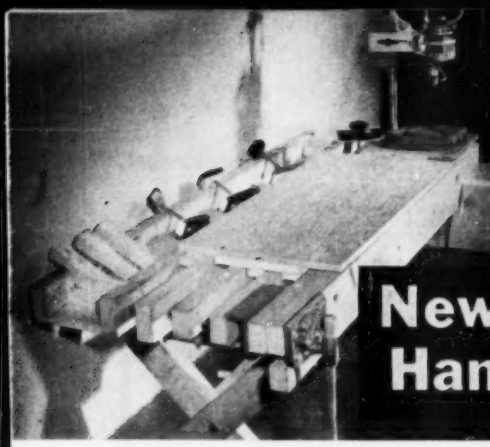
If no flame occurs when you press recycling button, press overload cut-out button (usually red) on motor—if there is one. If you still get no flame, call serviceman.

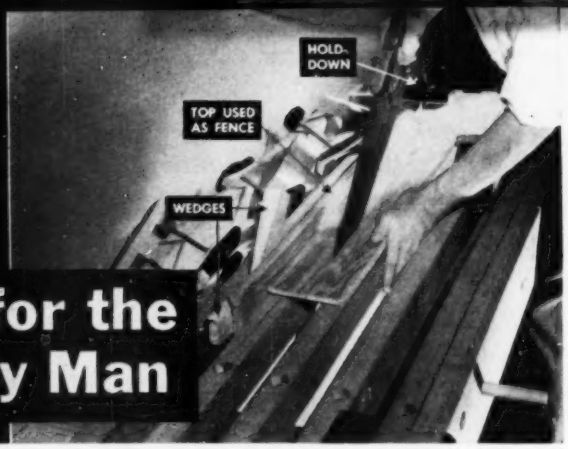
Trimming Renews Old Brushes

An old paintbrush can be given new life by trimming away the worn outer rows of bristles. When these bristles are worn short, they destroy the original flexibility and spreading power of the brush. Use a sharp knife or razor blade.—*Clinton R. Hull, Costa Mesa, Calif.*

Kit Contains 48 Magnets

Designed for shop or experimental use, the 48 permanent magnets in eight styles in this kit have a pull of up to two pounds each. Another kit is made up of 18 larger magnets with pulls of from three to 12 pounds. The kits are available from Carboloy, General Electric Co., Detroit.





New for the Handy Man

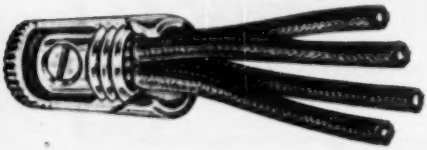
1. Slotted Workbench. Simple hold-downs secure work to this new bench for sawing, planing, sanding or routing.

Although the bench can be covered by a removable top held by locating blocks, the slots between the two-by-fours have many uses. Ripping with either a portable power saw or a handsaw (right above) is easy. The slots are handy, too, for through nailing or drilling. Also, wide pieces of work can be wedged in the slots for edge planing.

Other features of the bench include the removable plywood top (left above) to give a flat working surface. Wedged vertically in a slot, the top acts as a fence.

Power tools can be quickly attached or removed. The tools first are bolted to a wooden base. Two-by-fours spaced to match the slots are bolted to the base. Hold-downs then lock the base to the bench.

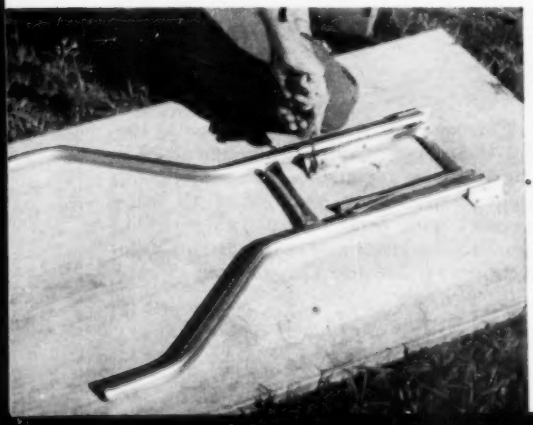
The bench, 24″ wide, 28″ high and 60″ long is assembled with bolts. Included are the removable top, two bench-top clamps, four hold-downs, wood-working vise, junction box for power tools and four wedges. It retails for about $60.

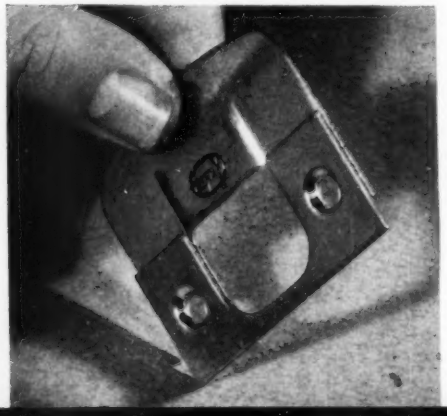


2. Setscrew Connects Wires. Two or more wires can be quickly joined with this connector (left). After the stripped wires are inserted in the brass sleeve, the setscrew is tightened, joining the wires. Then a Bakelite shell is threaded over the brass sleeve. The connector can be removed and used again to make a new connection. A screwdriver is the only tool needed.

3. Folding Table Legs. Strong enough to support more than 1,000 lb., these tubular steel legs convert a plywood panel into a general-purpose table. A flush door could be used to make a more elegant model. The screw-attached legs make a surface about 30″ high when extended, but quickly fold back to permit compact storage.

4. Door Strike Plate Adjusts. With the two screws slightly loosened, this strike plate can be moved to compensate for warping, settling, added paint layers or other causes of faulty alignment between door latch and strike plate. Serrations on facing parts hold the setting when the screws are tightened. Maximum adjustment is ⅛″.



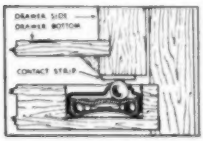


5. Box Finds Metal. Pipes, heat ducts or plastered-over electrical outlets can be located beneath plaster or wood with the Plaster-Eye. The instrument operates on self-contained dry cells, works by measuring the effect of eddy currents, and gives readings through metallic lath. When the instrument is passed over a hidden pipe, for example, the needle swings over sharply.

8. Extension Fits Paint Roller. With a mop or carpet-sweeper handle threaded into the handle of this paint roller, you don't need a ladder or scaffold to reach ceilings and upper walls. Without the extension, the roller can be used in the ordinary manner. The roller is 7″ long.

6. Rim Pours Paint. With this attachment (right) in place, paint won't slop over the rim when you mix or stir it, and the spout also makes it easy to pour paint. The plastic can enlarger—called Pormix—is attached by snapping it into a gallon can, keeping the can's sealing groove free of paint.

7. Ball-Bearing Glides. Drawers and sliding doors roll freely on these British-designed glides. A metal contact strip serves as a track for several circular units (above) mounted in the other member. Each circular unit has an off-center contact ball that bears on a circular plate inside. This, in turn rides on a thrust race. The glides are available with or without flanges.



9. Five Ladders in One. Because of notches and metal fittings, this ladder can quickly be adjusted to a number of positions. It can be used as an extension ladder, a stepladder, a stairway ladder (above) or as two straight ladders. It comes in two models—a heavy-duty job for painters and a household model. Both are available in lengths of 5′ to 8′ that extend from 8′ to 14′. The household model has flat steps on one section, making it easier for women to use as a stepladder.

Further information can be obtained from: 1. Martin Baumann Co., 370 Lexington Ave., NYC; 2. Holub Industries, Inc., Sycamore, Ill.; 3. Institutional Sales Co., 4932 Portico St., Philadelphia 44; 4. Kwikset Sales and Service Co., Anaheim, Calif.; 5. Plaster-Eye Co., 2560 Noblestown Rd., Pittsburgh 5; 6. The Pormix Corp., Glenville, Conn.; 7. Alpha Tool & Supply Co., Westwood, N. J.; 8. The American Products Co., 3311 Edson Ave., NYC; 9. Speicher Bros. Ladder Co., Indianola, Iowa.

How an Expert Aligns an Auto's Front End

It takes delicate instruments and a lot of know-how to keep the wheels of modern high-speed cars rolling true and safe.

By Howard G. McEntee

WHEN old Dobbin was a colt, buggies and wagons rolled around corners with ease. But in this motorized age, you have to go to specialists like Arnold Nadworny to keep your car taking the turns properly.

Nadworny is a wheel-alignment specialist. Every working day he deals with the intricacies of caster, camber, toe-in and kingpin inclination—all part of that mathematical jungle, front-end geometry, that confuses so many apprentice mechanics.

Knowing how to make adjustments, Nadworny is convinced, is just the beginning of what a good front-end man should know. He should also know why. Nadworny has a success story to tell about that—his own.

Some years ago he was a traveling trouble shooter for a manufacturer of the type of equipment he now uses. Hit by a yen to settle down, he looked around for a likely place to establish his own shop.

The community he picked already had several alignment shops, all reasonably successful. But Nadworny knew that they had a failing in common. They could do a front-end job, but the operators had never bothered to find out the reasons for what the books told them to do. Some even used their equipment incorrectly.

It Takes More Than Fancy Gauges

Nadworny's confidence that he could get a slice of the business by doing a better job has paid off. His shop is now a leader in the community.

One thing strikes you when you take a car to Nadworny's shop—the amount of work he does, the checks he makes, before taking even one reading from those fancy gauges you associate directly with front-end

alignment. But without this preliminary work, he explains, you never could know whether the readings you get are correct.

The first rule for aligning a front end is that the car must rest on a level surface. And the car won't rest level if tire pressure isn't equal all around.

So Nadworny, like all thorough front-end men, makes sure that incorrect tire pressure, spring sag, spring shackles, shock absorbers and bent or eccentric wheels are not causing the car to tip one way or the other. This check includes the whole car, not just the front end.

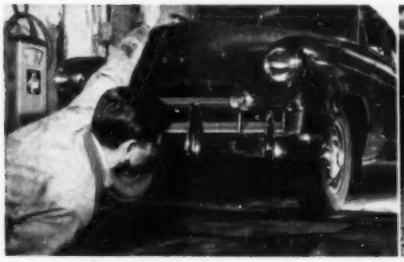
Each Maker Has Own Specifications

At the front end, checks and any necessary adjustments are made of the spindle bolts and bushings, the wheel bearings, tie-rod ends, the upper and lower support-arm pins and bushings, the lower control arms and bushings, steering arm, spindle, axle, torque and radius arms and wishbones.

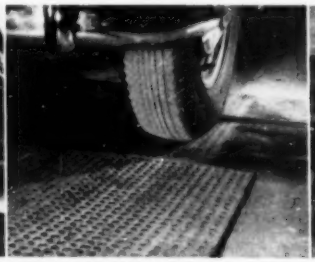
Then, finally, comes the alignment itself. Camber, caster, toe-in, kingpin inclination and toe-out on turns all are brought to specifications furnished by the car manufacturer. (To understand these confusing terms, see experiments that follow this article.)

Specifications vary considerably from car to car and year to year. Surprisingly enough, some manufacturers specify no camber and toe-in as the ideal. That has been the case with all Chrysler-made cars since around 1940, and the corporation has sought to impress on its mechanics that "front wheels straight ahead and straight up and down" is the goal to shoot at. Lately, Plymouth has also listed zero caster as the ideal specification.

In the old days, mechanics could do a pretty good job of hitting alignment angles by eye. But knee-action front ends brought complications. Today it takes specialists like Arnold Nadworny, using specialized equipment, to do the job right.



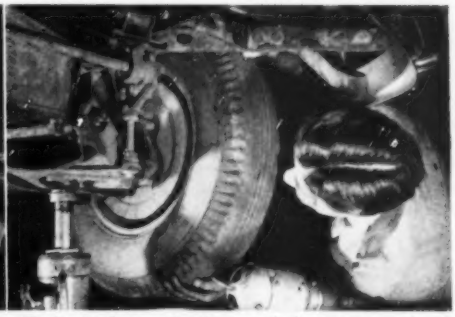
1 Beginning a job, Arnold Nadworny guides car up ramp of alignment tester. As front wheels begin to climb ramp they cross toothed bar, giving a toe-in reading on the dial at the left.



2 Toothed bar, free to move sideways, records how much tire is dragged sideways. Same toe-in measurement can be made on rack. Wear on inside treads here suggests alignment is needed.

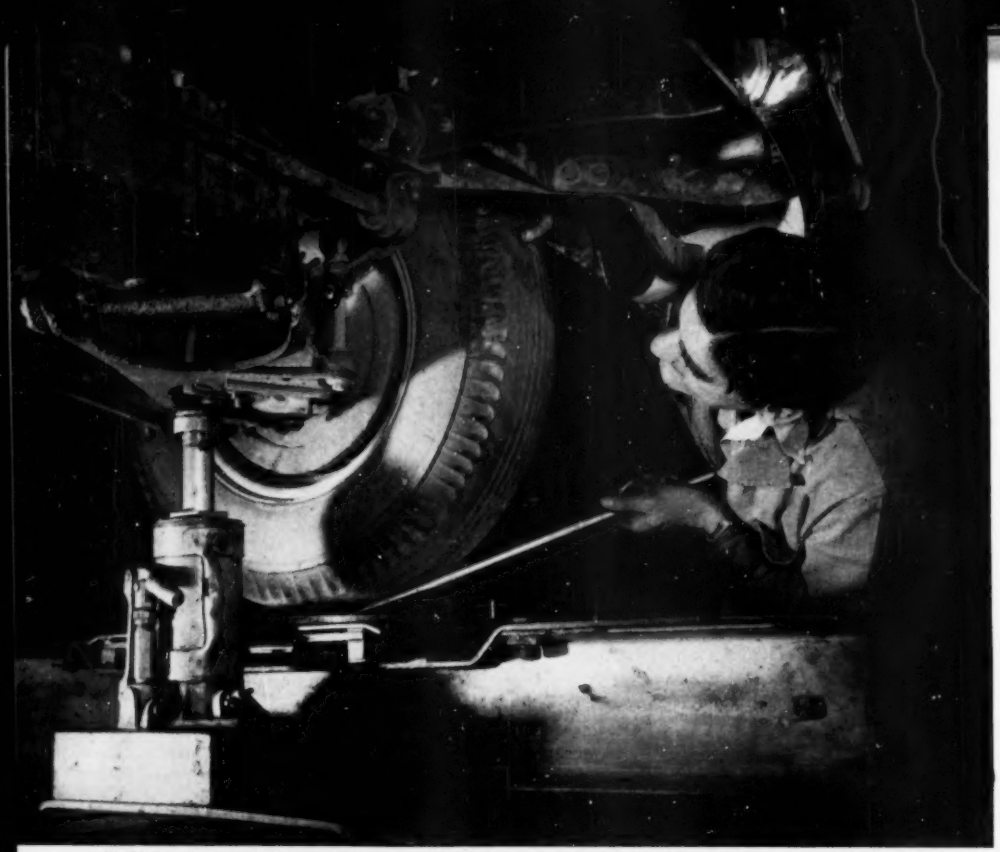
3 Too much toe-in was one trouble, so Nadworny corrects it first thing. Toe-in is adjusted by changing length of tie rod or rods. Screw arrangement here facilitates the job.

4 Before other alignment checks, Nadworny inspects wheel bearings, repacks them and removes looseness. Early in game, pressures also are brought to same reading in all tires.



5 Jacked-up wheels are shaken vigorously to see if there is play in kingpin bushings or knee-action parts. It is rarely worthwhile to attempt wheel alignment if such parts are worn.

Please turn the page for 8 more alignment photos.

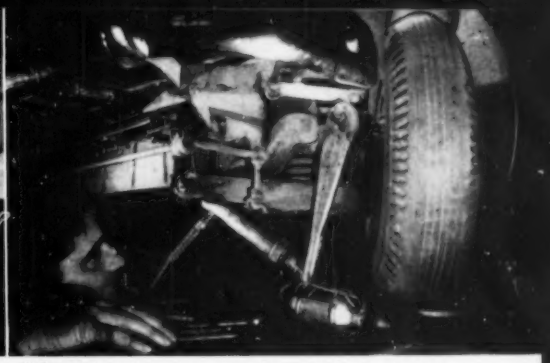


6 **Kingpin and knee-action wear** is even easier to detect if a pry bar is used. Both wheels also are shaken to reveal play in tie rod, drag link, pitman arm and steering gear.

7 **Actual alignment checks** now begin. This gauge measures both caster and camber. For an explanation of these alignment terms, see the experiments following this article.

8 **Angles are recorded** on chart as the job progresses. Note that gauge points rest against rim edge—not on tire or wheel ring. Curved scale indicates both caster and camber.

9 **Camber is adjusted** on this particular car by rotating eccentric upper pivot pin. It has socket for Allen wrench Nadworny is using. In this case, 180° rotation gives entire adjustment range. Same pin is threaded to move front and back to change caster.



10 **Hydraulic pressure** from jack is used to bend knuckle for increase or decrease of camber if eccentric pin does not allow enough adjustment to give correct reading. The forged knuckle support can stand such bending without any ill effects.

11 **Rear wheels are checked, too.** After front wheels are set absolutely straight ahead, tracking gauge is used on both sides of car to find whether front and back wheels are parallel and same distance apart. Sketch shows tracking defects that gauge may reveal. Tolerance of only ⅛" is allowed. Frame straightening is also a Nadworny specialty.

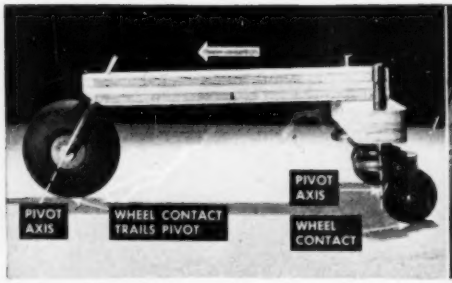
12 **As final fine point,** excess lash in the steering-gear mechanism is taken up by rotating an adjustment. This then is locked in position.

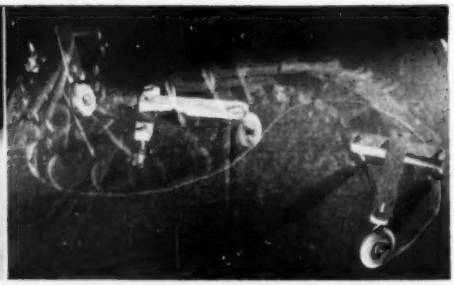
13 **Drag link is adjusted** to center steering wheel. With front wheels straight ahead, center bar of steering wheel should be horizontal. An uncentered wheel causes play in gearing. After a final check on alignment ramp and a road test, *this* car is ready for travel.

Models Show Why Car Wheels Need Alignment

By Harry Walton

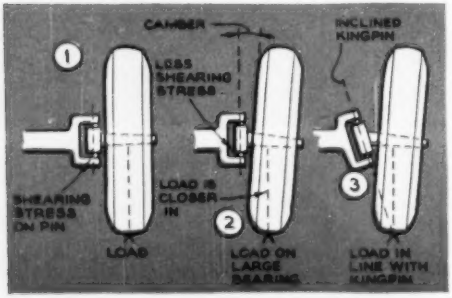
Terms like caster, camber, kingpin inclination, toe-in and toe-out are confusing until you know the reasons for these simple engineering tricks. Lots of mechanics don't.





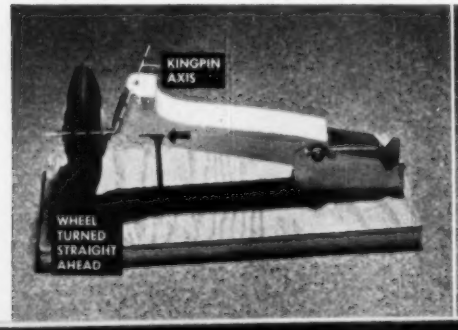
Caster. Ever try to push a piece of furniture with a reversed caster? It wabbles because the point of wheel contact is ahead of the pivot axis. But if the point of contact trails behind the pivot axis, direction is easily controlled. Front auto wheels are given caster for the same reason. In the model at left, above, the single wheel on the inclined pivot axis (kingpin) shows the method used. While it looks like a reversed version of the casters at the rear, the two are actually alike because, here again, the point of wheel contact is behind the pivot axis.

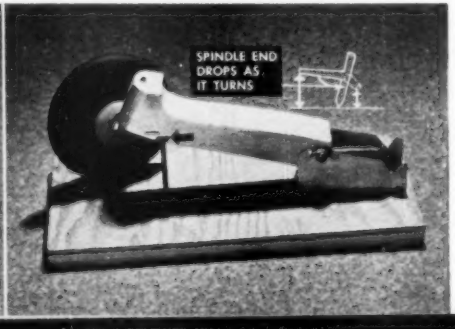
The multiple-exposure photograph at right, above, shows that both types of castered wheel will swing in whatever direction the model is being pushed.

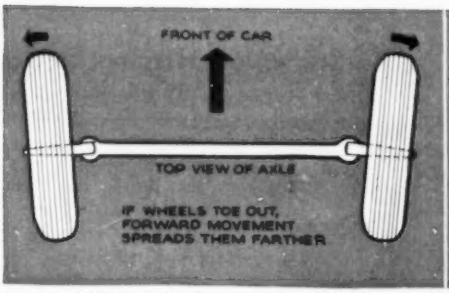


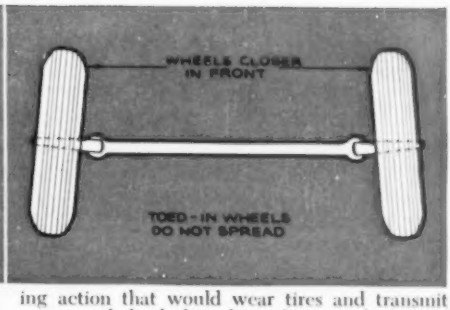
Camber. View of a much simplified wheel, spindle and axle at left shows that the load represented by the weight of the car comes between the wheel bearings (1). This looks reasonable until you consider that this off-center thrust is constantly trying to bend up the spindle and shear the kingpin. By tilting the spindle downward slightly, the wheel leans out at the top (that's camber) and you bring the load line closer to the main bearing, giving it less leverage to shear the kingpin (2). Front-wheel brakes required longer spindles, aggravating the problem. It was met by inclining the kingpin also, so its axis meets the load line (3).

Kingpin inclination not only brings load of car in line with the kingpin axis, but also adds steering stability, making the car tend to keep a straight course and even come back to it after a turn. The mockup below shows why. With wheel straight ahead, spindle is parallel to ground (or slightly downward because of camber angle). As steering turns the spindle body, end of spindle tends to swing down farther. Since it can't push the wheel into the ground, it raises the car. Pencil mark (arrow) shows how the axle rises as the wheel is turned from straight-ahead position. The weight of the car seeks to turn wheel back straight.



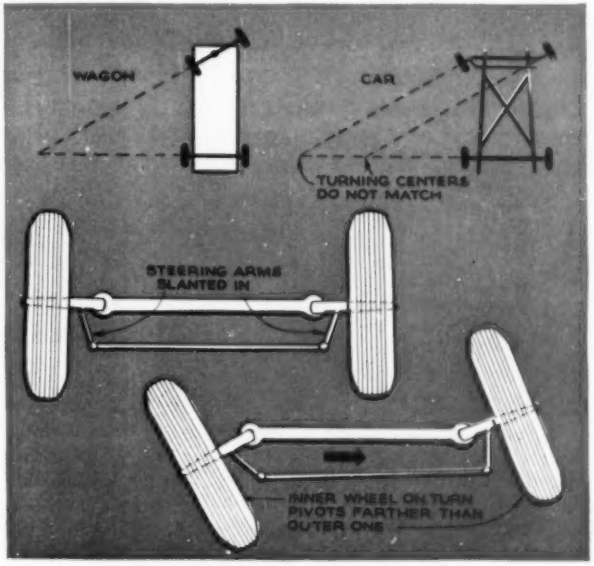


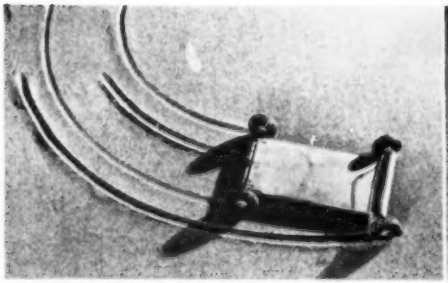


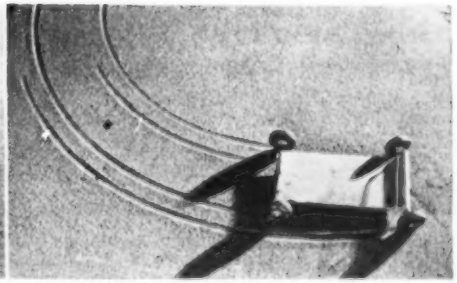


Toe-in. If front wheels swung on their kingpins without a tie rod between them, you can easily imagine how they would both fold back when the axle was pushed forward. Even with the tie rod, tendency would remain, increased by braking action that would wear tires and transmit every road shock directly to the tie rod. Toeing in the wheels slightly while they are pointing straight ahead counteracts their natural tendency to spread apart.

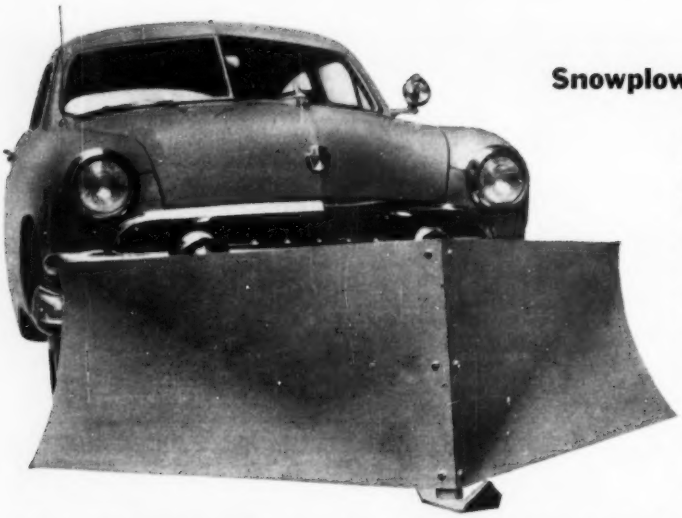
Toe-out. In buggy days, the pivoted front axle and the fixed rear one swung around a common turning point. But when front wheels were independently pivoted on a rigid axle, swinging both equally gave them a different turning radius, only one of which could be the same as that of the rear wheels. The inside front wheel has to be turned farther than the outside one to have the same turning center. Faced with the problem of having toe-in with wheels straight and toe-out when in a turn, engineers solved it by slanting the steering arms. Move both equally, and the inner one swings farther from the straight-ahead position.







Why tires wear if front wheels don't turn on the same center is shown by sand tracks of a four-wheeled model (left). Rear wheels make sharp clear tracks. Front wheels (in this case with *excessive* toe-out) throw up a ridge of sand. Battling each other, they are being dragged sidewise in their own tracks. With proper toe-out, front wheels make tracks as sharp as rear ones (right), proving they are not being subjected to any sidewise thrust.



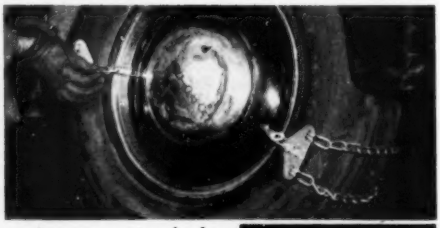
Snowplow Hitches to Car

WHEN snow piles up in the driveway, you can hitch this plow to the bumper of the family car and quickly clear it away. The plow attaches in a few minutes if you keep the ball members of two trailer hitches permanently mounted on the bumper during the winter. Blades are ⅛" steel. *Cheston L. Eshelman Co., 119 Light St., Baltimore.*

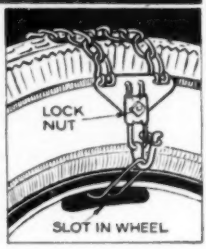
Liquid Toughens Brake Lining

BRUSHED on the brake linings, a new liquid compound of copper and silver is intended to eliminate fading and lengthen the lining life. Used at the Indianapolis Race last year, Cop-Sil-Loy is available for passenger-car use. *Abbott Kible Co., 11001 W. Santa Monica Blvd., West Los Angeles.*

All-Steel Chains Lock on Wheel



A METAL ring locks these emergency chains on the wheel. Two sizes adjust to fit all cars with wheel slots. Lock nuts make the size adjustment. *Kon-veen-yunt Chain Co., 1406 Cherokee Rd., Richmond, Va.*



Springs Keep Tow Chain Snug

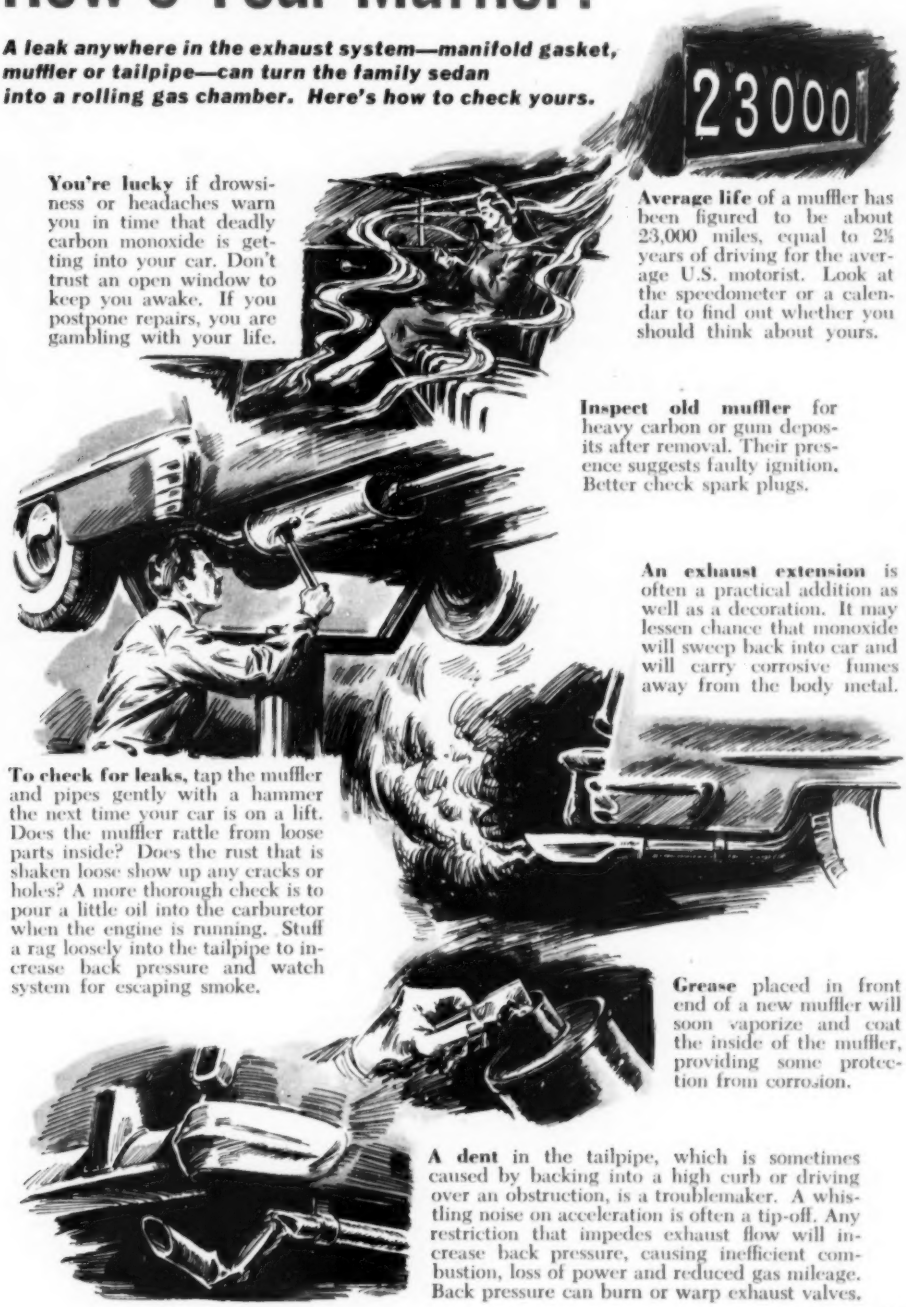
EIGHT feet long and weighing only 5½ pounds, this tow chain can be fitted to the bumper of any car. Strong coil springs hold the clamp securely to the bumper regardless of its width. *Master Specialty Co., 3016 E. Lake St., Minneapolis.*

Workshop Wisdom

Bill's brakes didn't hold worth an atom.
Relined is what he shoulda had 'em.
But instead, with a thrill,
He went down a steep hill
And for brakes used his chin on macadam.

How's Your Muffler?

A leak anywhere in the exhaust system—manifold gasket, muffler or tailpipe—can turn the family sedan into a rolling gas chamber. Here's how to check yours.



You're lucky if drowsiness or headaches warn you in time that deadly carbon monoxide is getting into your car. Don't trust an open window to keep you awake. If you postpone repairs, you are gambling with your life.

Average life of a muffler has been figured to be about 23,000 miles, equal to 2½ years of driving for the average U.S. motorist. Look at the speedometer or a calendar to find out whether you should think about yours.

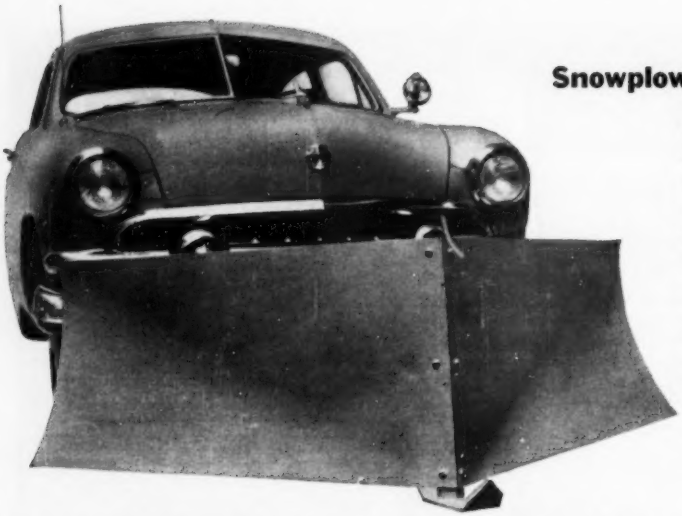
Inspect old muffler for heavy carbon or gum deposits after removal. Their presence suggests faulty ignition. Better check spark plugs.

An exhaust extension is often a practical addition as well as a decoration. It may lessen chance that monoxide will sweep back into car and will carry corrosive fumes away from the body metal.

To check for leaks, tap the muffler and pipes gently with a hammer the next time your car is on a lift. Does the muffler rattle from loose parts inside? Does the rust that is shaken loose show up any cracks or holes? A more thorough check is to pour a little oil into the carburetor when the engine is running. Stuff a rag loosely into the tailpipe to increase back pressure and watch system for escaping smoke.

Grease placed in front end of a new muffler will soon vaporize and coat the inside of the muffler, providing some protection from corrosion.

A dent in the tailpipe, which is sometimes caused by backing into a high curb or driving over an obstruction, is a troublemaker. A whistling noise on acceleration is often a tip-off. Any restriction that impedes exhaust flow will increase back pressure, causing inefficient combustion, loss of power and reduced gas mileage. Back pressure can burn or warp exhaust valves.



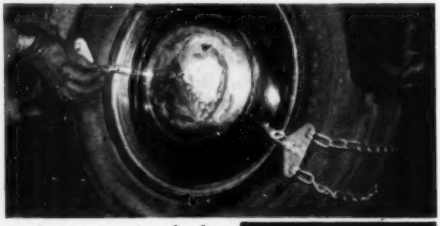
Snowplow Hitches to Car

WHEN snow piles up in the driveway, you can hitch this plow to the bumper of the family car and quickly clear it away. The plow attaches in a few minutes if you keep the ball members of two trailer hitches permanently mounted on the bumper during the winter. Blades are ⅛" steel. *Cheston L. Eshelman Co., 119 Light St., Baltimore.*

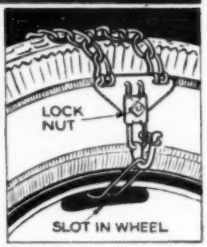
Liquid Toughens Brake Lining

BRUSHED on the brake linings, a new liquid compound of copper and silver is intended to eliminate fading and lengthen the lining life. Used at the Indianapolis Race last year, Cop-Sil-Loy is available for passenger-car use. *Abbott Kible Co., 11001 W. Santa Monica Blvd., West Los Angeles.*

All-Steel Chains Lock on Wheel



A METAL ring locks these emergency chains on the wheel. Two sizes adjust to fit all cars with wheel slots. Lock nuts make the size adjustment. *Kon-veen-yunt Chain Co., 1406 Cherokee Rd., Richmond, Va.*



Springs Keep Tow Chain Snug

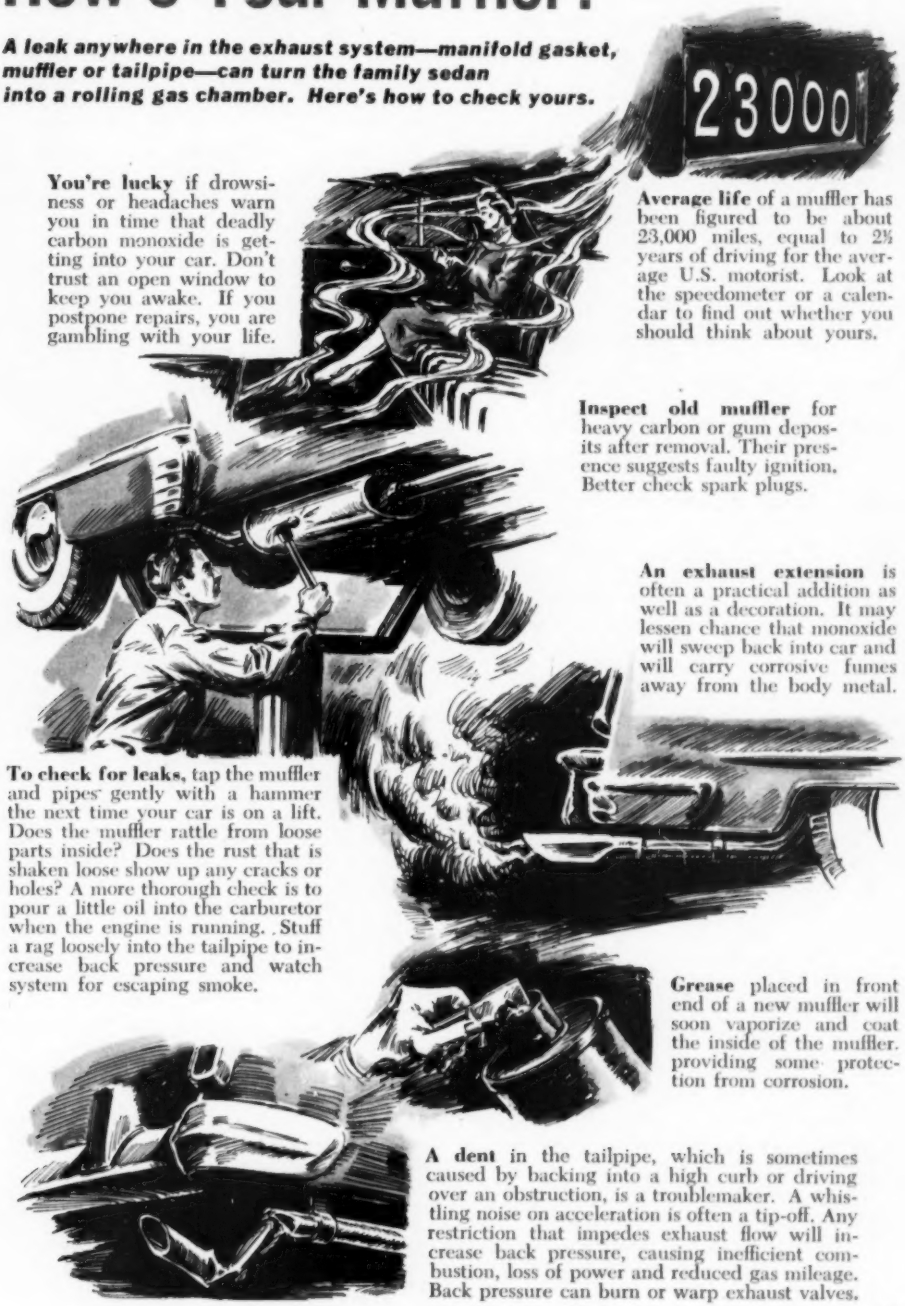
EIGHT feet long and weighing only 5½ pounds, this tow chain can be fitted to the bumper of any car. Strong coil springs hold the clamp securely to the bumper regardless of its width. *Master Specialty Co., 3016 E. Lake St., Minneapolis.*

Workshop Wisdom

Bill's brakes didn't hold worth an atom.
Relined is what he shoulda had 'em.
But instead, with a thrill,
He went down a steep hill
And for brakes used his chin on macadam.

How's Your Muffler?

A leak anywhere in the exhaust system—manifold gasket, muffler or tailpipe—can turn the family sedan into a rolling gas chamber. Here's how to check yours.



You're lucky if drowsiness or headaches warn you in time that deadly carbon monoxide is getting into your car. Don't trust an open window to keep you awake. If you postpone repairs, you are gambling with your life.

Average life of a muffler has been figured to be about 23,000 miles, equal to 2½ years of driving for the average U.S. motorist. Look at the speedometer or a calendar to find out whether you should think about yours.

Inspect old muffler for heavy carbon or gum deposits after removal. Their presence suggests faulty ignition. Better check spark plugs.

An exhaust extension is often a practical addition as well as a decoration. It may lessen chance that monoxide will sweep back into car and will carry corrosive fumes away from the body metal.

To check for leaks, tap the muffler and pipes gently with a hammer the next time your car is on a lift. Does the muffler rattle from loose parts inside? Does the rust that is shaken loose show up any cracks or holes? A more thorough check is to pour a little oil into the carburetor when the engine is running. Stuff a rag loosely into the tailpipe to increase back pressure and watch system for escaping smoke.

Grease placed in front end of a new muffler will soon vaporize and coat the inside of the muffler, providing some protection from corrosion.

A dent in the tailpipe, which is sometimes caused by backing into a high curb or driving over an obstruction, is a troublemaker. A whistling noise on acceleration is often a tip-off. Any restriction that impedes exhaust flow will increase back pressure, causing inefficient combustion, loss of power and reduced gas mileage. Back pressure can burn or warp exhaust valves.

Gus Fixes Their Wagon

Of course he could have refused to touch a getaway car—but that was no grease gun in his back.

By Martin Bunn

IT WAS nearly closing time at the Model Garage and Gus was played out. It had been a raw, windy day, he'd had to go out on several emergency calls and now he was hurrying to finish up the last job before quitting time. But he was finding it a bit difficult to concentrate with his attention divided three ways.

First, he was working on Doc Tandy's Model A. Second, the doc himself stood at Gus's elbow expounding an elaborate theory about how humans and automobiles were pretty much the same because they both broke down and had to be repaired. Third—and this was what Gus was really concerned about—an old but big, black sedan had been parked across the street for the last half-hour with two strangers in it who seemed to be keeping a mighty sharp eye on the doorway of the Model Garage.

Gus Gets the Jitters

It was just his imagination, Gus decided. Gloomy weather and fatigue had upset his nerves. He finished tightening the cylinder head on the Ford, twisted in a new set of plugs and closed the hood.

"Okay, Doc, she's all yours."

Doc Tandy gave him a keen glance as he left. "Gus, you better go home and get some rest."

Gus peeled off his dungarees. He figured he'd leave the sweeping up to his helper, Stan Hicks, who had borrowed Gus's car and would return it to the garage later in the evening. Gus looked around at the next few days' work—two overhauls and a ring job. Then he flicked off the lights and reached to pull down the doors. . .

"We got a car for you to fix." The voice slammed across his shoulder. Gus jumped.

"I'm sorry, I'm closed for the night."

"Inside, grease ape!"

Two Customers in a Hurry

Gus drew back when a pistol barrel gouged his ribs. A sneer twisted the pasty face, and piggish eyes glittered back at him. The man made a motion with his other arm, and the black sedan rolled into the darkness of the garage.

"It's simple, buster. Fix our car fast and you'll be okay. Don't, and I separate you at the belt line."

"There's all-night garages in town, and you don't need a gun to get service. If you're after my day's receipts, they're in the bank already!"

The other man stepped from the car. He was younger, neater, but there was an odd slant to his face. He spoke quietly.

"Our apologies, dear sir, but sometimes a gun is necessary. Perhaps I should explain. In criminal nomenclature we are known as escaped cons. A good friend of ours provided this car, but it doesn't run well." He

Gus struggled with the rope, but it was no use. The cons had done too good a job.

looked around at the three dismantled cars on the floor. "And really, with no other car here in running condition, you offer us no choice but to insist that you fix ours. By the way, don't underestimate my associate's willingness to shoot. One more would make no difference. A prison guard suffered a slight case of trigger mortis last night!"

The young man chuckled over his joke.

"I could call the police."

"You'd never reach the phone."

The convict's smile broadened.

"And shooting me won't get your car fixed!"

"No, but there are other places, and you don't want to die."

Gus looked from one man to the other. They weren't bluffing.

"Okay. You win."

"Now you're getting smart. Here's the pitch. This heap sputters every time you step on the gas in low gear, and in high over 35 or 40 it misses badly."

"That isn't so serious."

"It's serious if we have to play tag with a few patrol cars. Get busy."

Gus stepped away from the prod of the gun and opened the hood. It was a 1940 Lincoln Zephyr. He plugged in the trouble light and started the engine. It idled smoothly and sounded in good shape for its age. But when Gus pulled on the accelerator arm and revved the engine, it sputtered erratically and backfired.

Gus rolled up his sleeves. The pug still held the gun on him.

"I'm not going to try anything. Why don't you put that thing away?"

"Because I don't want to get belted with a wrench, that's why! Just do your work there."

Gus tackled the carburetor first, on the assumption that it was out of adjustment or clogged by dirt. But it was wasted motion.

"I guess it's your ignition system."

"You guess! Look, you find it quick! We ain't got all night!"

Gus tried the plugs next. It took time to inspect 12 on the testing machine. And while he checked, he heard them whispering rapidly in back of him. Only one word reached his ears—Chicago.

Gus put the plugs back in, and as he tightened up the last one on the forward end of the engine, he remembered something. There was a certain peculiarity to the '40 Zephyr that might . . . but there wasn't time for that yet. Gus wiped the clammy sweat off his face.

"Work!" The older man waved his gun toward the engine.

The distributor points were clean. They were pitted, but not enough to cause trouble, and though they were getting old, the contact metal wearing thin, they checked out all right when he tested the setting.

Gus didn't waste time putting an instrument on the coil. Instead, he got a new one and hooked it up. Looking hopefully at his captors, Gus slowly rolled up engine speed. Just at the instant he thought the danger point had been passed the spitting began again.

Gus leaned on the car and tried to stop trembling. His mind searched frantically for an answer, but it was hard to think with a gun pointed at him.

"Shake it up!"

"Look," Gus exploded, "you might as well get it into your pin-size brain that this may take a while!"

The older man edged forward menacingly, but the other stopped him.

"Let him think."

Gus remembered the condenser then. There again, rather than take time to check it, he installed a new one. As a second thought he checked the insulation on the wiring, and still found nothing.

The end of the road had been reached now. He had checked everything he could without tearing the engine down.

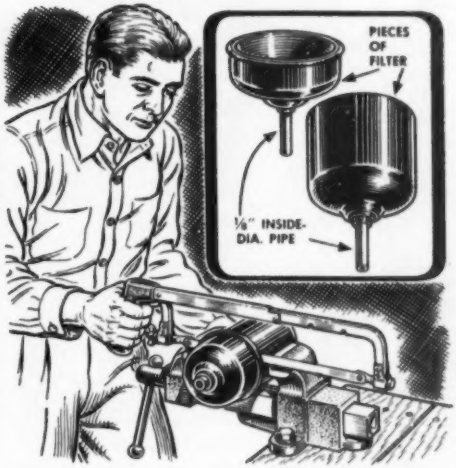
"I've gone as far as I can. You better find another mechanic."

[Continued on page 256]

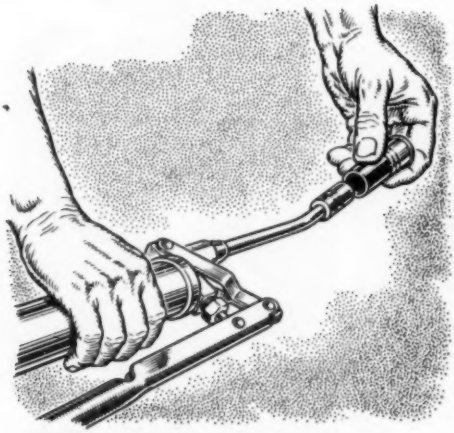
AN EARLY-MODEL Peerless offered a hinged steering column that folded forward to permit an outsize motorist to slip into the driver's seat with more ease and less wheeze.

Hints FROM THE MODEL GARAGE

Paper wrapping can be removed by dropping a new tire so that it lands on the tread. The casing will flex and snap the paper. Don't use a knife; it may slip and damage the tire. Be sure that no bits of paper get inside, because they can cause tube failure.



Two handy funnels for shop use can be made by sawing in two a throwaway type of oil filter. Remove the inside element. Thread two short pieces of ⅛" pipe, screw them into the already threaded holes in each half, and the funnels are complete.

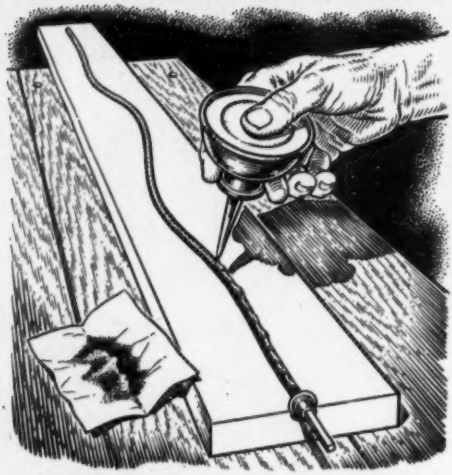


A used shotgun shell slipped over the nozzle of a grease gun will protect the coupling and keep out dirt. Dust and dirt that collect in the lubricant are sometimes driven into the grease fitting. A 12-gauge shell fits the nozzle snugly.

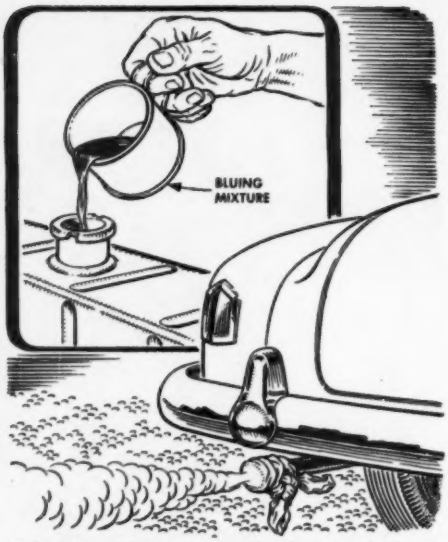
If water drips from the rain troughs and seeps into the trunk, you can divert most of it by simply closing the trough ends and drilling small holes an inch or so toward the front of the car. Close the troughs with solder or by squeezing them shut.

Please turn the page for more auto hints.

MORE Hints from the Model Garage

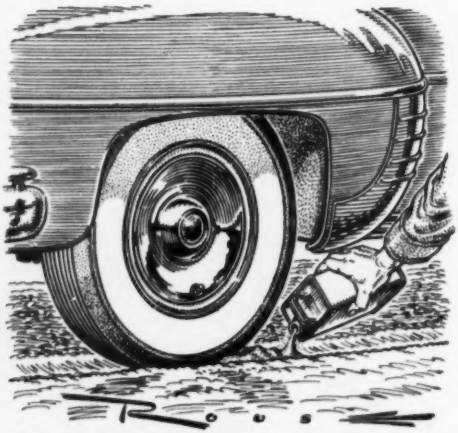


Graphite is the ideal lubricant for a speedometer cable, but getting it into the cable sheathing may be a problem. Here's one way of doing it: remove the inner cable, lay it on a board, apply the thinnest possible line of light oil on it, spray powdered graphite on the oil until the oil is blotted up and replace the inner cable.



A head gasket can be checked for leakage by adding two spoonfuls of washing bluing to a cup of permanent antifreeze, pouring it into the radiator, tying a cloth over the tailpipe and running the engine. If there's a leak the bluing will color the cloth. The antifreeze will help you in locating the leaky trouble spot.

Windshield fog and steam can be wiped away quickly with a cellulose sponge. It will remove dirt and grease streaks and absorb considerable moisture before becoming saturated. A small inexpensive sponge will do the trick.

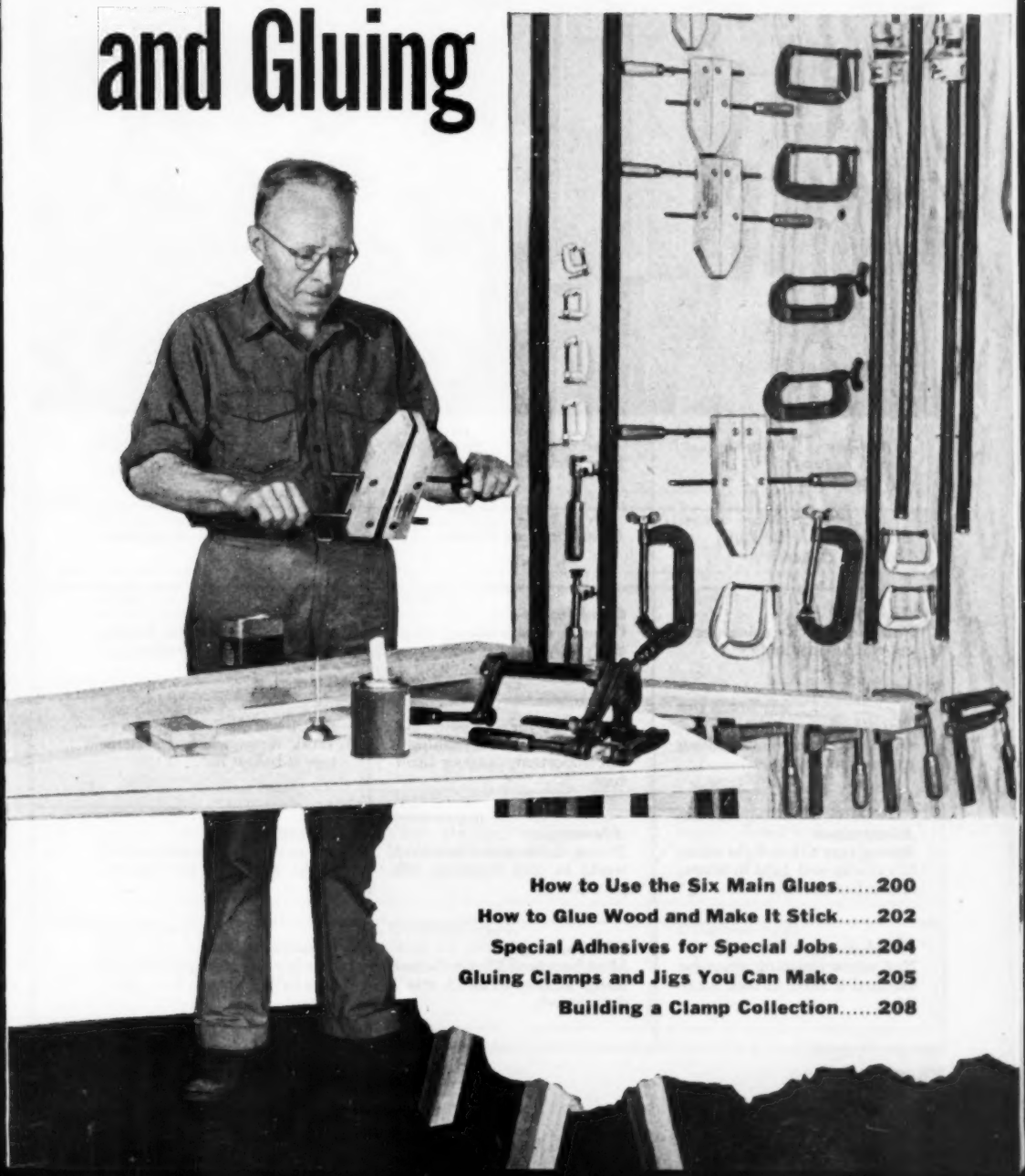


If sand is carried in a couple of one-gallon, screw-top cans, you can simply pour it under the tires when you get stuck on ice or snow. No need for a shovel to spread it. The cans are better than a box, for the sand can't scatter through the trunk.

Here's how to pick the glue to suit your work and shop, how to apply it, and how to use clamps to make it stick.

All About Glues and Gluing

By Paul Corey
and Darrell Huff



How to Use the Six Main Glues.....200
How to Glue Wood and Make It Stick.....202
Special Adhesives for Special Jobs.....204
Gluing Clamps and Jigs You Can Make.....205
Building a Clamp Collection.....208

THE fellow whose slogan is "hit on a good thing and stick with it" is going at gluing the hard way. No *one* glue is *the* glue for every job.

In your everyday workshop operations you may not need every glue in the book, but you will need several—possibly three or four. It pays to know which glue is good for what job so that you can choose wisely.

To complicate matters, two identical jobs using the same wood, the same kind of joint and the same clamps will require a different glue if one workshop is warm and the other chilly. The owner of the warm shop can take full advantage of the plastic resin and resorcinol glues (they set quickest and strong-

This master chart shows the six main kinds

Type Glue Liquid Animal and Fish Glue	***Type Glue*** Powdered Casein	***Type Glue*** Resorcinol
Brands include Le Page, Franklin, Rogers.	*Brands include Casco.*	*Brands include Cascophen.*
Good for Furniture and cabinetwork, general wood gluing.	***Good for*** General woodworking, especially oily woods; teak, yew, lemon.	***Good for*** Outdoor furniture, boats, items that may be soaked.
Not Good for Outdoor furniture or anything exposed to dampness.	***Not Good for*** Acid woods unless staining is not important; outdoor furniture.	***Not Good for*** Work done where temperature is below 70°.
Advantages Strong, easy to use, light color, fills cracks and gaps in joints, resists heat, mold.	***Advantages*** Strong, fairly water resistant, works in cool locations, fills poor joints.	***Advantages*** Very strong, waterproof, works well with poor joints.
Disadvantages Not water resistant, must be warmed if used in cold location.	***Disadvantages*** Must be mixed 15 min. before using, subject to mold, stains dark woods.	***Disadvantages*** Powder and catalyst must be carefully mixed, has dark color.

est in warm surroundings), while the poor guy in the unheated garage *must* use a casein glue.

Add to this the problems of gluing oily woods (teak, lemonwood, yew and other oily tropical woods) or poorly fitted joints, and you'll find that one glue will glue all of the jobs some of the time and some of the jobs all of the time, but never all of the jobs all of the time.

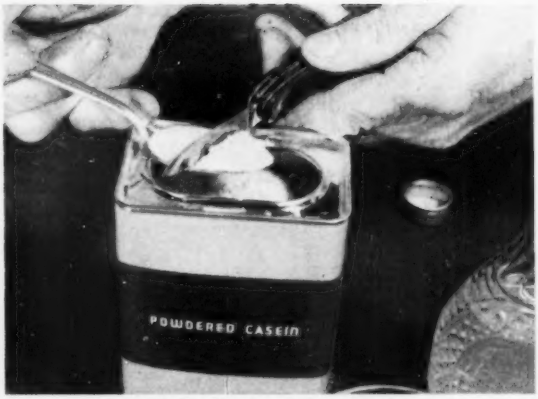
For a speaking acquaintance with all of the glues used for woodworking, study the chart below. With it as your guide you can select the glues that fit your work and your workshop. Brands shown are typical of each type of glue.

of glue and where they are used best.

Type Glue White Polyvinyl	***Type Glue*** Plastic Resin	***Type Glue*** Flake Animal
Brands include Cascorez, Wilhold.	*Brands include Weldwood, Cascamite.*	*Brands include Craftsman.*
Good for Model work, paper, leather, small wood assemblies, mending.	***Good for*** Furniture, veneering, work exposed to dampness.	***Good for*** Quantity woodworking, furniture.
Not Good for Anything requiring resistance to stress and water.	***Not Good for*** Oily woods or poorly fitted joints not clamped.	***Not Good for*** Anything that may be used or stored in damp places.
Advantages Always ready to use at any temperature, nonstaining.	***Advantages*** Very strong, waterproof, leaves light-colored joint.	***Advantages*** Light-colored joints that need no bleaching, fills cracks and gaps in joint.
Disadvantages Has high cold-flow after setting. Good only for light work.	***Disadvantages*** Must be mixed for each use, needs heavy clamp pressure.	***Disadvantages*** Inconvenient for quick or occasional use, must be kept hot.

How to Glue Wood and Make It Stick

When a glue joint fails, there's a reason. But post-mortems are no substitute for durability. Check your own technique against the pointers below. Clamping deserves special attention (see following pages). Pressure should be evenly distributed and sufficient to squeeze out the excess glue but not so great as to starve the joint of adhesive by squeezing it dry.

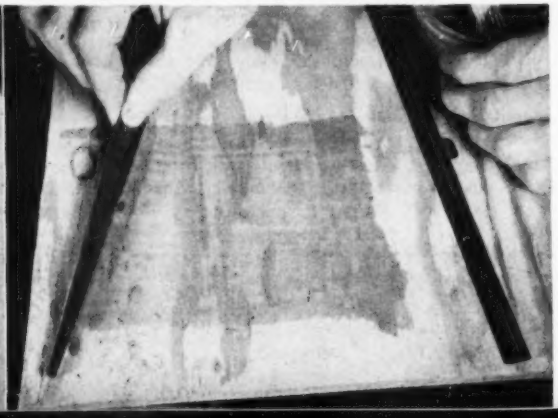


Measure it carefully if you want strong joints. There is a correct amount of water or catalyst for each powdered glue. Don't guess at proportions. If you use flake glue, mix each ounce with 1½ ounces of water, let stand overnight, use hot.

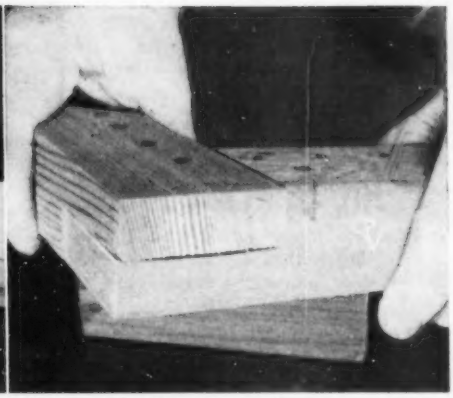
Clean old work. When regluing a broken joint, scrape or sandpaper down to bare wood. Most glues work by penetrating the porous wood grain; they can't get a grip on surfaces sealed by old glue or paint.

Clamp it properly. Shown above are two roads to a weak joint. At left, no clamp is used; at right, clamp is too tight, forcing most of glue out of joint, and there are no blocks to spread pressure and protect work.

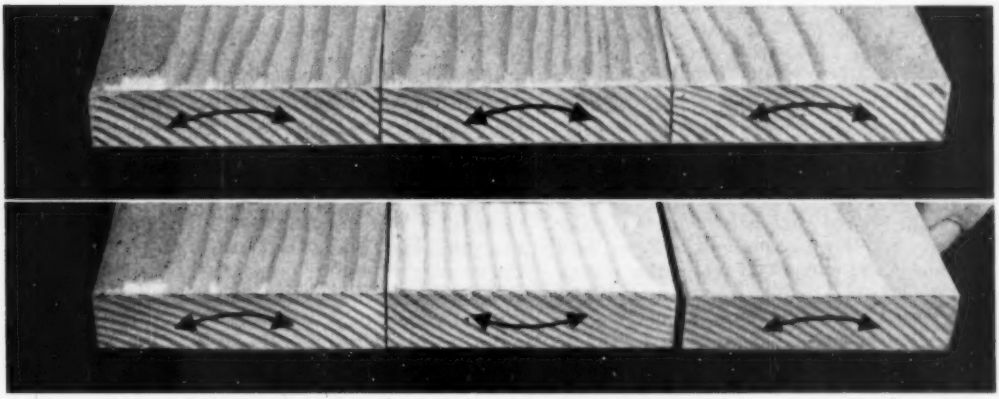
Apply glue right. Don't wear the glue brush to a frazzle using it in the wrong place, such as filling cracks (below). There are many better ways of putting glue where you want it. Old saw blades and windshield wipers do a fast job of covering broad surfaces (below). An old photo-print roller is useful to spread an even layer of glue on a plywood panel. Chair rungs



Watch temperature. Animal glues won't spread when cold, and plastic-resin glues won't set properly below 70°. For best results with all glues, have both the glue and the work at 70° or higher.

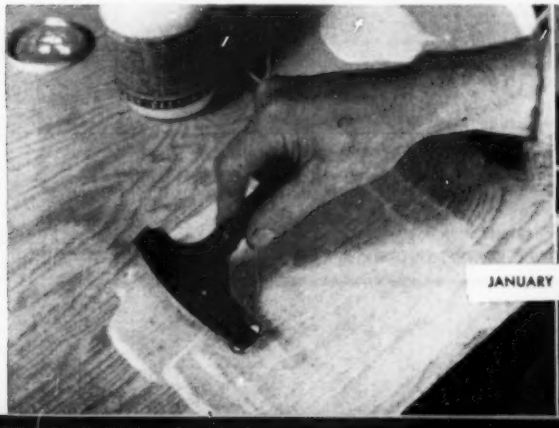


Make it fit. No glue produces a strong joint when the fit is as poor as this. Where you must glue a poorly fitted joint, as in repairing a loose chair rung, use an animal, casein or resorcinol glue if possible.

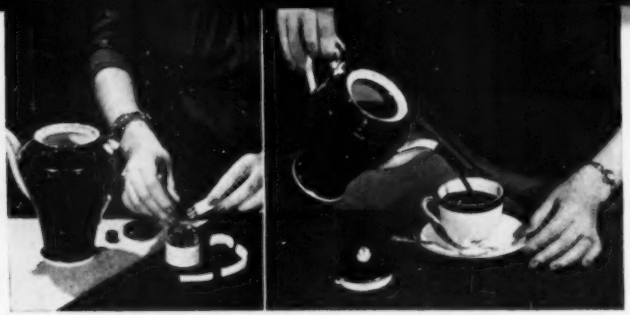


Alternate the grain. When gluing stock edge to edge—as for a tabletop—lay out the boards so that the direction of grain alternates, presenting the heartwood side of the grain *up* on every other board. In upper photo above, all grain curves downward, increasing the chances that finished piece will bow later. In lower photo above, center piece is turned heartwood side up, canceling out tendency for finished piece to cup in one direction.

or other similar joints can be reglued without pulling them apart if a small hole is drilled into the dowel hole and glue pumped into it with an oil can. A hypodermic needle will shoot small quantities of glue under blistered veneer, and a paint-striping tool will spread it in narrow ribbons for grooves, inlay borders, cracks and other long thin work.



Special Adhesives for Special Jobs



Catalyst-type cement does a really tough job on china, pottery, glass and metal. Here it easily mends a broken coffee-pot handle, providing a strong bond that resists heat, moisture and stress of handling.

THERE'S a wide choice of adhesives for sticking together an even wider assortment of things not made of wood. Most of them work on many materials.

Cellulose household cements (such as Duco, Ambroid, Testor's and John Collins) do a fair job on practically anything. Use them with china, glass, pottery, leather, fabrics and plastics. Joints should be clamped.

Black mastic adhesives (such as Magigrip, Miracle Black Magic) work on both porous and nonporous surfaces. They'll grip tile, glass and mirrors, metal plates, asbestos board, bricks and a lot of other things. They don't require tight clamping but won't take much stress.

Flexible cements (such as Casco Flexible) are light-colored and handle many similar jobs. Spread this type on both surfaces, let it get tacky and join. Good for joining porous materials (wood, paper, felt, canvas, plaster and leather) to each other or to metal, glass, foil, plastics or linoleum. A surprisingly strong bond can be had with such difficult combinations as wood-to-metal.

Catalyst-type cement (such as Stik-All) is a new development for problem materials like china, glass, pottery and metals. It does a superior job without tight clamping and stands up to heat, but you have to mix it for use and it's tricky to mix less than a dollar's worth.

Special-purpose adhesives are best used for critical jobs. Stick a plastic toy back together with plastic cement, but if you work regularly with a plastic, get the solvent cement made for it (toluol and even carbon tet work on most molded plastics).

One specialized adhesive is a new type for putting down counter tops of the Micarta type. Stix and Armstrong's D-243 are examples. They grab so fast that you can put the counter top tightly in place with a roller or mallet without clamping. Of course, with proper clamping, you can do as well with ordinary resin glue.

GLUING PROCEDURE

Type Glue	How to Prepare	How to Apply	Minimum Room Temperature	Setting Time at 70° Softwood	Setting Time at 70° Hardwood
Liquid animal or fish	If room is cold, warm glue to 70° or higher.	Spread on both surfaces; let get tacky before joining.	Sets best above 70°, but can be used in colder room if glue is warmed.	12 hours	24 hours
Casein	Mix equal parts glue and water. Let stand 10 min. and stir again.	Use within 8 hours after mixing. Put on a thick coat.	Any temperature above freezing, but the warmer the better.	2 hours	4 hours
Polyvinyl	Comes ready to use.	Spread on and clamp at once.	Any temperature above freezing. Sets faster if warmed.	20 min.	30 min.
Plastic resin	Mix 2 parts powder with ½ to 1 part water.	Apply thin coat to one surface only.	Must be 70° or warmer. Will set faster at 90°.	4-6 hours	5-7 hours
Resorcinol	Mix 3 parts powder to 4 parts liquid catalyst.	Apply thin coat to both surfaces, clamp.	Must be 70° or warmer. Will set faster at 90°.	8 hours	10 hours
Flake or powdered animal	For each oz. glue add 1½ oz. water (softwood) or 2 oz. (hardwood). Keep hot and use at 140°.	Apply with brush, work fast and warm joint for best results.	Must be 70° or warmer. A heat lamp is useful during assembly and setting period.	12 hours	24 hours

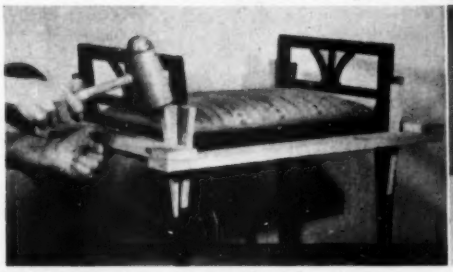
FOR YOUR *POPULAR SCIENCE MONTHLY* INFORMATION FILE

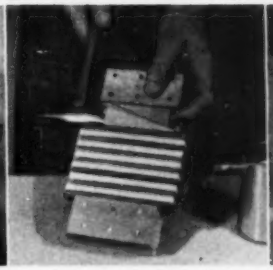
Gluing Clamps and Jigs You Can Make

PREPARING the work and getting glue on it is only half the job; *holding* the parts together while the glue takes a grip on them is the other and possibly the more important half.

Clamps are usually accumulated through the years, and chances are you don't have all the clamps you need. You can still build good healthy glue joints though, using homemade methods of applying pressure. Even if your shop wall is loaded with clamps, you'll find times when no factory-made clamp will quite suit the job. One of the ideas that follow may be the answer to the job that sticks *you.*

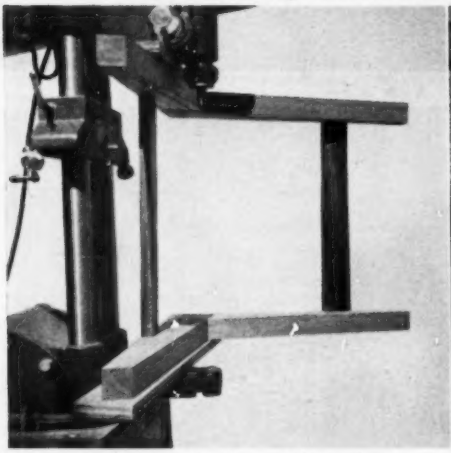
Utilize the Squeezing Action of Wedges



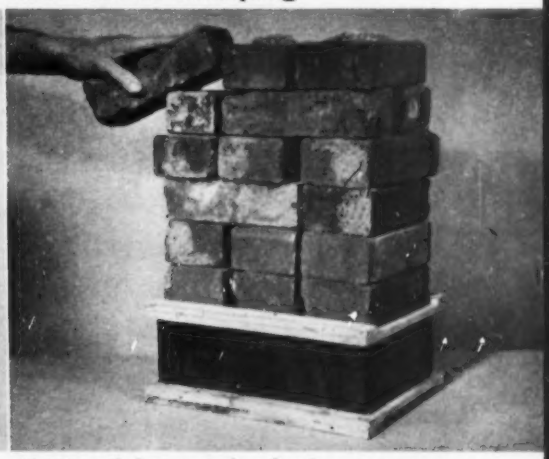


Wooden wedges can supply a lot of pressure. Tenon joints in stool at left above had loosened with age. Old glue was cleaned out, new glue applied, and joints forced tightly together by wedges driven into a wooden frame made slightly larger than the stool. Strips of walnut and maple (center photo) are glued together in a wedging jig consisting of two blocks of wood nailed to a flat board. At right above, the wedge becomes part of the joint. Force a hardwood wedge into a saw kerf in the end of the peg or chair rung and apply glue. As the rung is driven into the blind hole, the wedge is driven all the way into the cut, expanding the rung end tightly against the sides of the hole and squeezing out the excess glue.

Let Gravity Come to Your Aid in Clamping

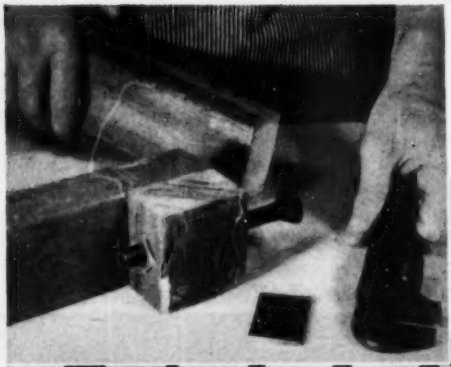


Heavy drill-press head provides plenty of weight in easily handled form. Just put the glued-up work together, set it on the drill-press table and ease the head down on it when you release the column clamp.

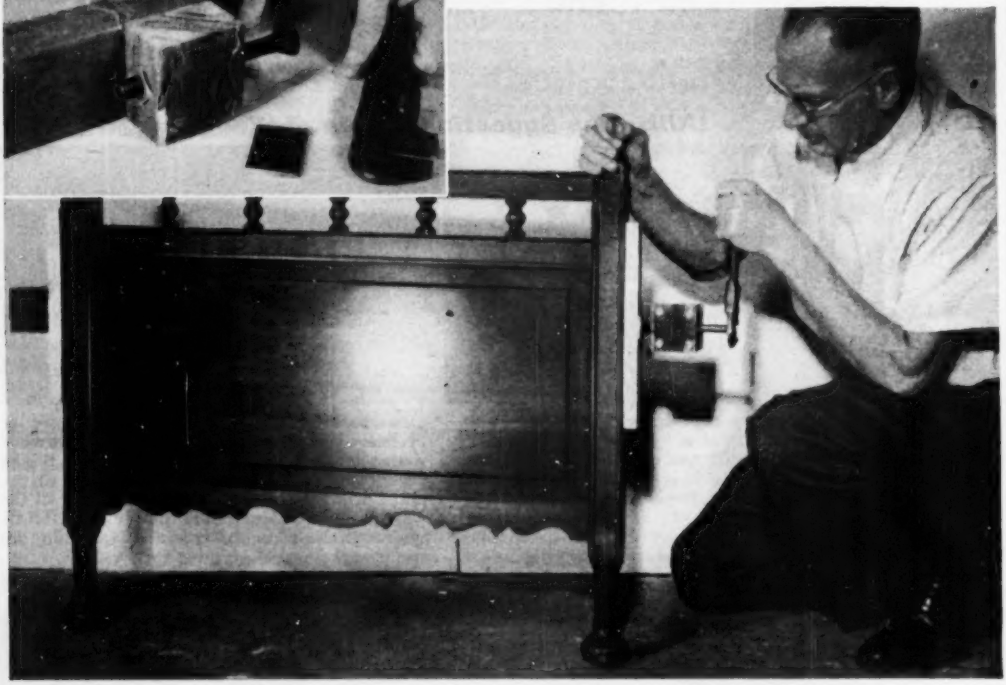


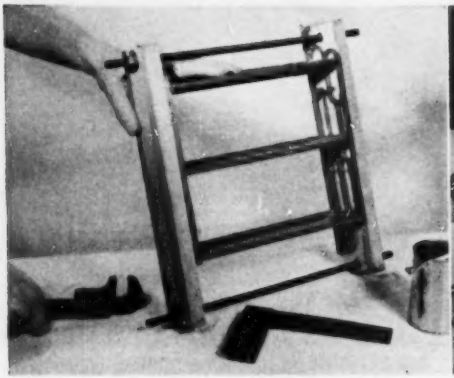
Bricks, piled on top of each other, concentrate weight on one spot with little effort on your part. Here they put a 90-lb. load on less than one square foot. A large tub can also be placed on work and filled with water.

Let Bolts Put the Pressure on Your Work

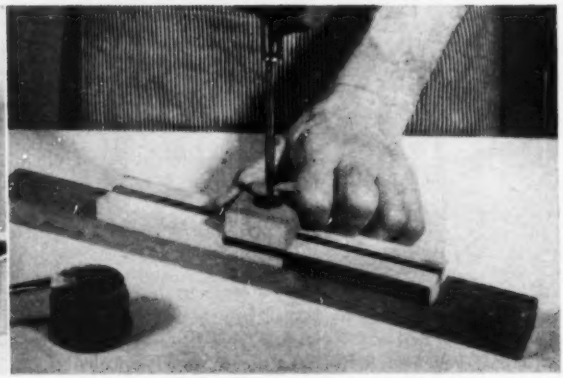


Husky bolt, threaded into nut set in block of wood, becomes head end of homemade bar clamp. Wood block is screwed to a length of two-by-three, and plain block is screwed to opposite end at length suited to work. Bolt bears against bit of metal (in foreground at left) to prevent digging in. Below, headboard of bed is clamped with gadget.



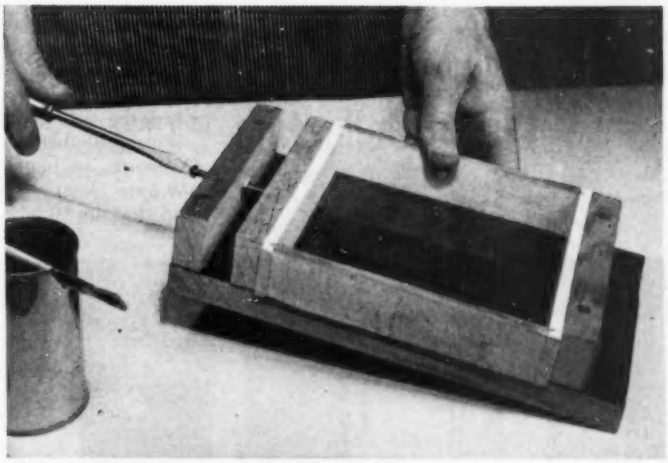


Two threaded rods or long bolts put the squeeze on many awkward assemblies. End boards should be thick enough to eliminate any tendency to bow out in middle. Check squareness of work as you tighten.

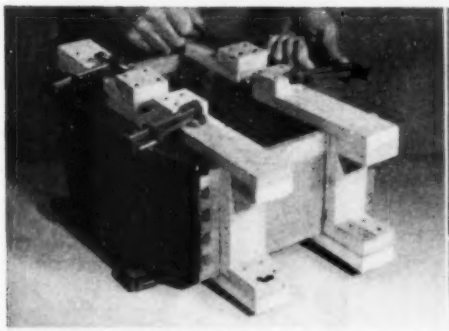


Jig for lap joints. A straight board, bolt and block of wood make this jig for clamping two half-lap joints at once. Straight board assures that splice will be as straight as single long piece. Waxed paper keeps work from sticking to jig.

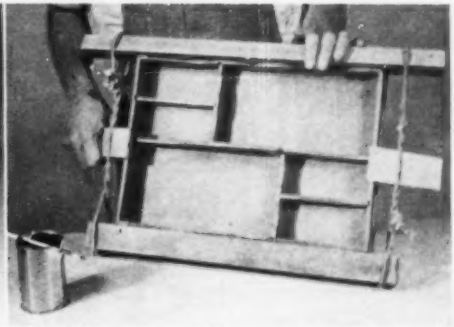
Drawer jig is a widened version of homemade bar clamp. Two bolts instead of the one shown here will give more pressure and permit equalizing it. Larger jigs of this type should have three or more tightening bolts. Handy glue container in foreground is tin can notched at both sides to keep glue brush handy.



Improvise with What You Have to Get Clamping Pressure

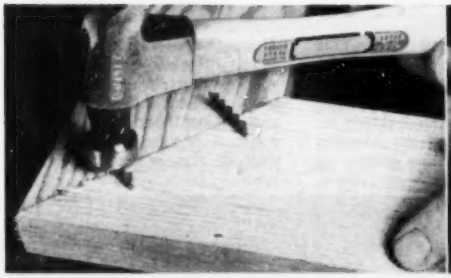


Small clamps do big job if you use them right. A set of wooden hooks—strips of wood with blocks nailed to them—allow small, inexpensive clamps to do the work of large ones. Only four clamps are needed for this drawer-gluing setup.



Spanish windlass still comes in handy. A pair of rope tourniquets pulling two stout lengths of lumber against the work is the granddaddy of all clamps. For extra pressure, wet the rope so it will shrink on drying.

Permanent Fasteners May Substitute for Clamps on Some Jobs



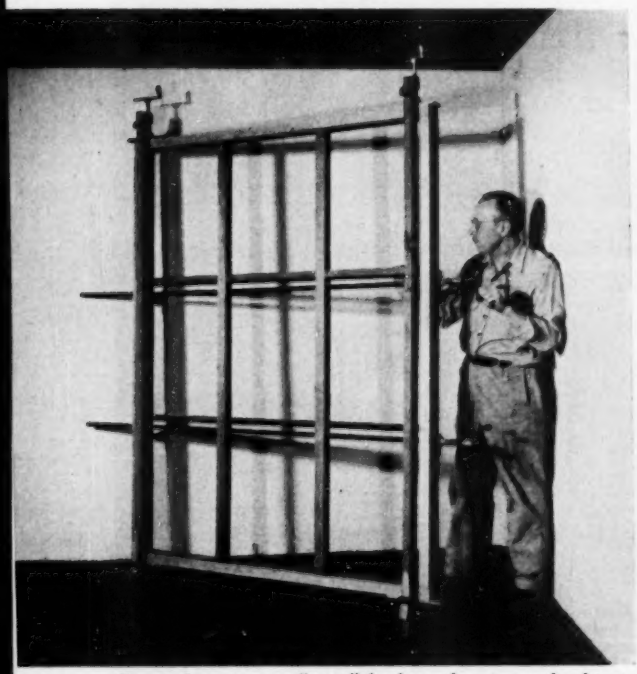
Corrugated fasteners are made with corrugations at slight angle toward each other to pull work together when they are hammered into it. They are especially useful for rough work or where only one side shows.

Chevron type is bent at right angles to go around a corner joint. This kind of fastener can be used on narrow work. They are packed with a small tool for countersinking them neatly out of sight.

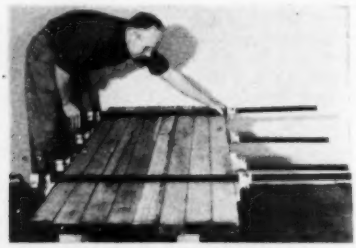
Building a Clamp Collection

One woodworking expert says "Clamps are the craftsman's third hand." And, he adds, the most annoying deficiency in the average workshop is in the clamping devices—the ones that aren't there.

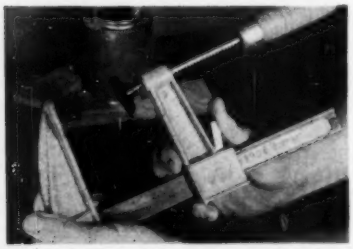
You probably have a number of small *C clamps*, so begin your collection with a few *long clamps*—either the bar type or the kind that fits on ¾" pipe. Next to add should



Long clamps are a "must" for large framing and cabinetwork. The two vertical clamps shown are the poor man's pal. The metal parts aren't expensive, and can be quickly fitted to long wooden bars. Other two are 6′ bar clamps.

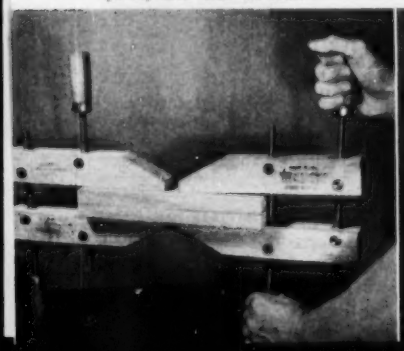


Clamp fixtures that fit on ¾" pipe—head threads on, foot slides—are about as efficient and rigid as costlier bar clamps. Sets of pipes of different lengths can serve one set of fixtures to handle a variety of work.



Short bar clamp is cross between regular bar clamp and C clamp. It can be adjusted to size in an instant by sliding the head (in some models the foot) along the bar, a good feature when your hands are full.

Hand screw (frequently called a "Jorgensen") is *the* woodworkers clamp. Its wooden jaws will not damage the work. Clamp at right below is not adjusted properly; it should grip the work with parallel jaws, like one at left.



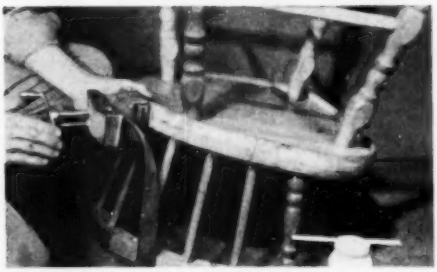
Uneven surfaces like this ironing-board end are clamped with ease with an adjustable hand screw. Screws are quickly opened or closed down to size by gripping both handles and cranking the screw in either direction.

Deep-throated C clamps will reach into the center of small work where the pressure is most needed. These are of all-metal construction and small wooden pads must be used to protect the work from their jaws.

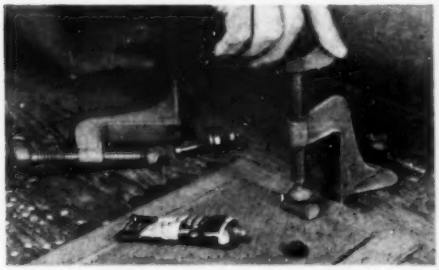
be some wooden-jaw *hand screws*—the larger the better. At this point you're set for most jobs and you can think about some specialized clamps.

Press screws head the list of specials; they are very handy for rigging up all sorts of gluing devices, including veneer presses.

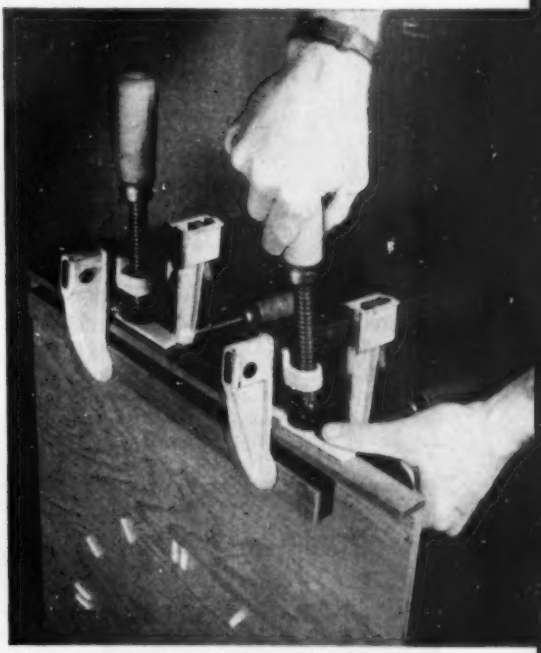
Edge-clamp fixtures attach to short bar clamps for gluing edge trim along counter tops. *Miter clamps* make frame building easy, and a *band clamp* is practically a necessity if you are working with round or curved shapes. A set of *spring clamps* is mostly for convenience (they can be applied with one hand while the other holds the work), but once in a while you'll find a job where nothing else will work. The same is true of *surface clamps*.



Band clamp wraps itself around curved or round work and squeezes it from all directions. You can get these clamps with either steel or heavy-canvas bands. Canvas is best for irregular shapes, steel for round or oval shapes.



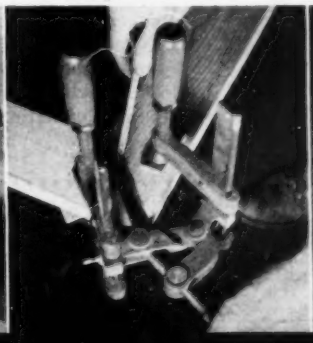
Surface clamp or bench clamp is attached to bench top with special bolt that fits in T slot. When clamp is removed, head of holding bolt slips down into counterbored hole, leaving bench surface clear.



Edge-clamp fixture attaches to short bar clamp for gluing strips to board edges. Bar clamps are screwed tightly on board, and edge clamp then applies pressure against the edge of the board. Wood strip along edge equalizes pressure.

Spring clamp is best suited to light assembly work. Its chief advantage is that it can be put on with one hand while other holds the parts. These overgrown clothespins are also good for small veneering jobs and border-inlay work.

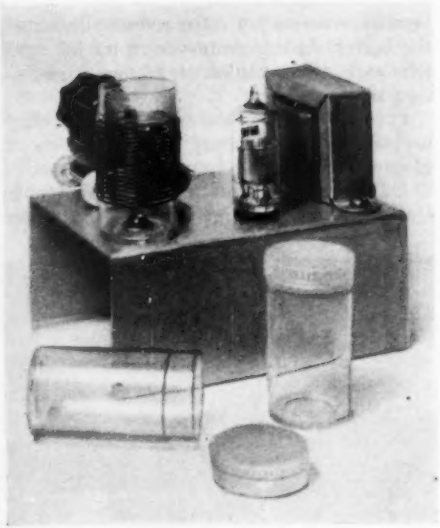
Universal clamp is a real tricky gadget. You can place it on a fitted miter joint, open joint by twisting center handle, apply glue and then bring miter tightly together again to set. It's almost like having a second pair of hands.



Press screw is heart of many special gluing presses. Four or more can be made into a press for veneering panels. Here one is used to cement linoleum to wood for making block prints. Pressure is vertical, work won't slide. END

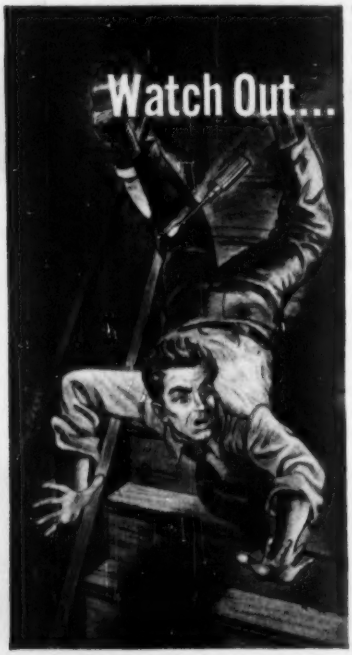
Makes Own Gasoline Tank

Two 50-gal. oil drums were welded together by Melan Arnold of Steuben County, Ind., to form this 100-gal. gasoline tank for his farm. The angle-iron legs and cross braces were salvaged from an old windmill tower.—*A. E. Holden, Angola, Ind.*



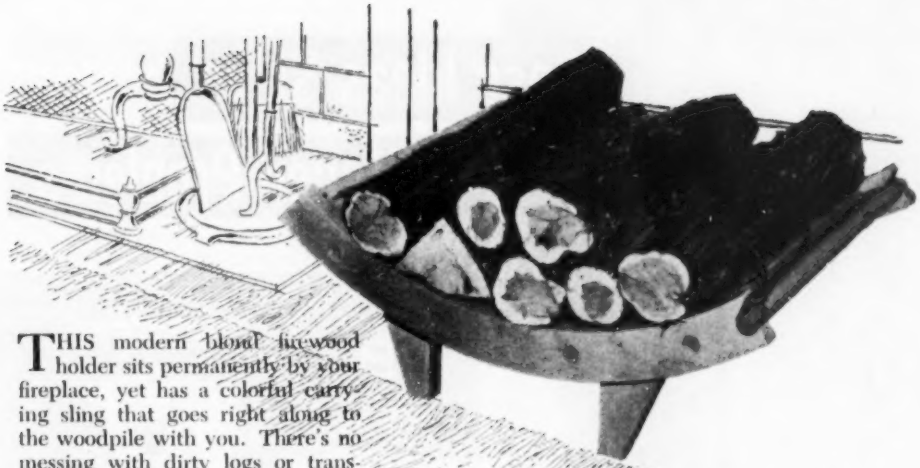
Coils Wrapped on Bottles

ALL-PLASTIC pill containers, available at most drugstores, make swell coil forms for UHF radio equipment. Those pictured here cost about three cents each. You can mount them on a chassis by drilling holes in the bottoms for machine screws.



in JANUARY for dangerous falls. Only auto accidents kill more people each year than do falls. January is usually the peak month for tumbles at home. But not, as you might expect, because of ice. Two-thirds are indoors.

IN THE steel industry, once plagued with falls, a man today can expect to work a lifetime and never take a spill. Steel's prevention methods can be used in your home. You will virtually eliminate falls at home if you take time to **(1) keep loose objects off stairs and away from middle of floor; (2) tack down linoleum or rugs; (3) keep light cords near baseboards; (4) install bright lights in dark rooms; (5) keep furniture near walls—not in center of room; (6) climb on step stools or ladders, not chairs, and (7) put handrails on stairs and over bathtub.**



Modern Woodbox Has Lift-Out Sling

A handsome fireplace ornament, it also serves as a carrier to help you lug in a new load of logs.

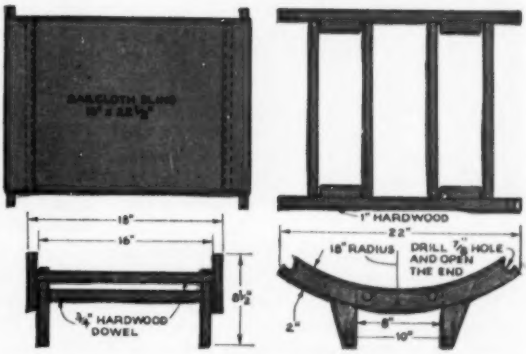
THIS modern blond firewood holder sits permanently by your fireplace, yet has a colorful carrying sling that goes right along to the woodpile with you. There's no messing with dirty logs or transferring a heavy load from a separate carrier to the woodbox. The holder does both jobs in one. And to clean it, you just shake the dirt and bark chips into the fireplace.

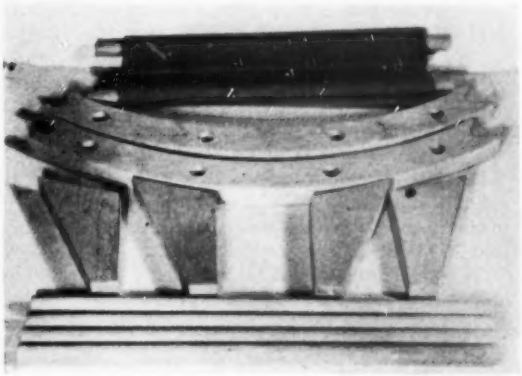
Frame. I made mine out of birch, but any hardwood will do. The two side pieces are a full inch thick, 2″ wide, and curved to an 18″ radius. Drill the ¾″ holes for the dowels and saw the pieces to shape.

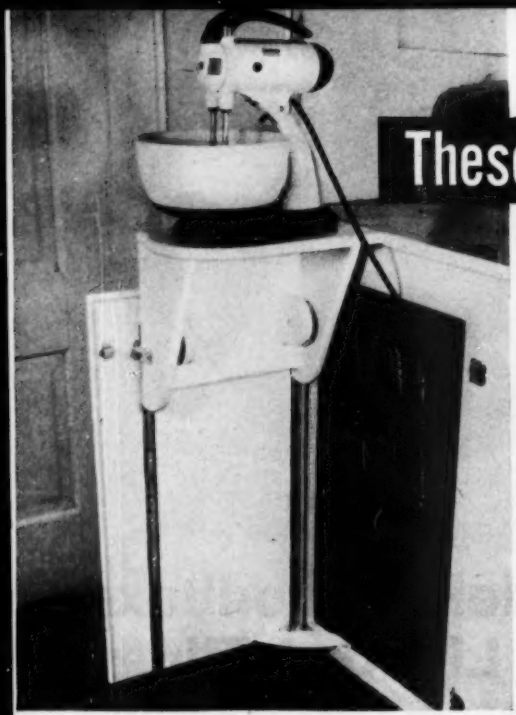
The legs are cut from the same 1″ stock and glued and screwed to the inside of the side pieces. Drill pilot holes for the screws to avoid splitting the wood.

Cut the ¾″ dowels to 18″ lengths and glue them into the side pieces. When dry, sand the entire assembly with very fine paper, apply several coats of clear lacquer, and wax and polish.

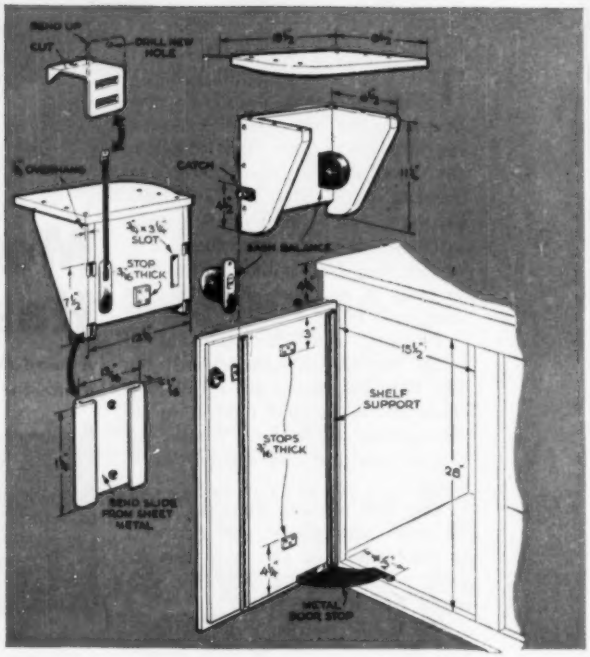
Sling. This is a rectangle of brightly colored sailcloth folded double, stitched down both sides, then looped around the removable end dowels and double-stitched. The dowels fit into the notches at either end of the frame to hold the sling in place.—*John Rogers, Dallas.*







These Ideas Solve Kitchen Problems



Mixer Disappears into Its Cabinet

OPEN the door, pull up this mixer, and it's ready to use. When the job is done, shove down the platform, close the door, and the mixer is safely out of the way until the next time the housewife needs it.

Spring mounted. This solution to the common problem of what to do with the bulky mixer is achieved with two hardware-store items—a pair of spring sash balances and a pair of adjustable-shelf supports. The supports serve as a track for the sliding unit and the balances make it easy to raise and lower. Stops limit the unit's travel and a catch holds it level with the top of the counter. The mixer is permanently plugged into an outlet inside the cabinet.

The sliding unit will fit most standard cabinets. The door opening is the only critical dimension. To accommodate the ordinary mixer, it must be at least 15″ wide and 25″ high.

The shelf unit should be built first, using ¾″ stock. Modify the ends of the sash-balance tapes by cutting off the hook, bending up the end and drilling a new hole. Install the balances in slots cut in the back of the shelf unit.

Track and slides. Bend four slides from heavy sheet metal so they are an easy sliding fit on the shelf-support tracks. Mount them on the back of the shelf unit, spacing them to suit the tracks.

Attach one track to the hinge side of the cabinet door so that when the door is open the mixer shelf will fit up snug against the counter top. Then position and align the other track. Locate the lower stop on the door so that the mixer unit will clear the door casing. After attaching the tape ends to the upper part of the door, screw the upper stop in place. A stop to hold the door open while the mixer is up can be cut and bent from sheet metal. Screw the mixer base to the shelf.—*Keith Heryford, Cedarville, Calif.*

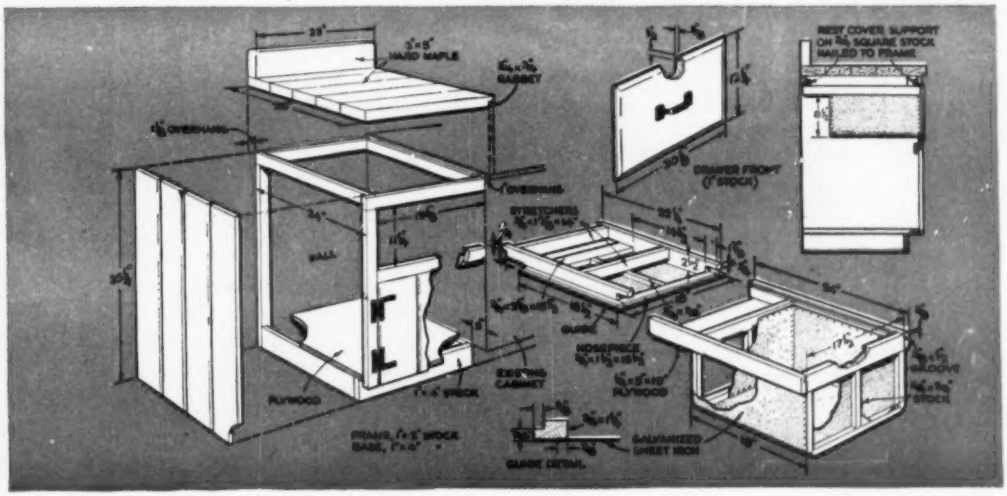
Chopping-Block Cabinet Has Built-In Breadbox

FEW cabinets can qualify for three kitchen jobs—but this one does. Its hard-maple counter is a handy cutting board. It keeps bread fresh in a metal pull-out box. And it stores a lot of equipment on its four square feet of space behind the door. Material was conserved in its construction by nailing framing members to the wall and the end of an existing cabinet. The end was covered with 1″ pine boards, recessed behind the vertical facing strip, and the door was made of the same stock held together by two battens.

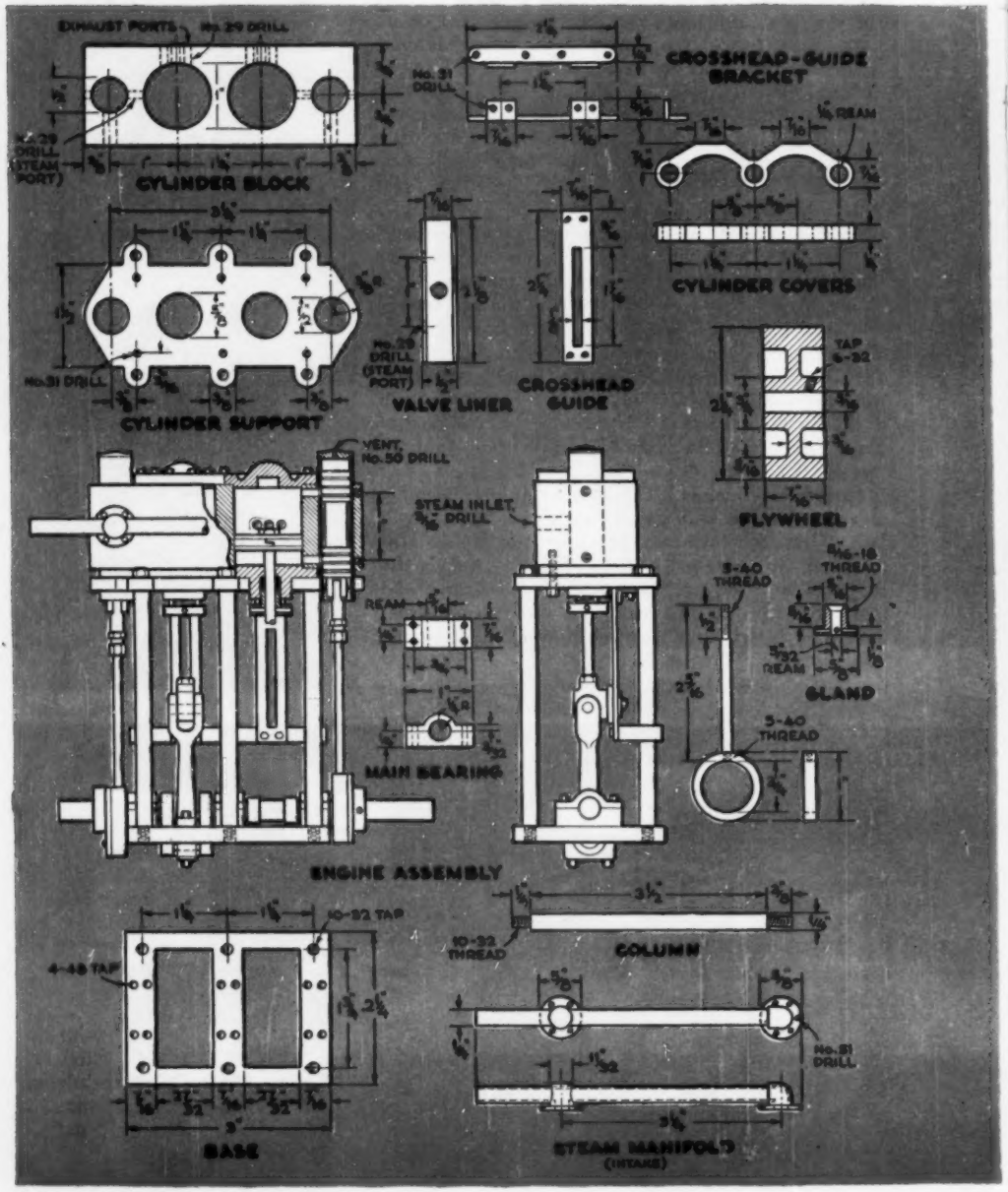
Maple top. For the top, 2″ by 5″ hard maple, dressed four sides, was glued up and then trimmed to size. A ¾″ by ¾″ rabbet cut along one edge allows the top to rest firmly on the adjoining counter.

The drawer was begun by building the end frames and covering their inner faces with light-gauge galvanized sheet, attached with blued gimp tacks. An 18″ by 27½″ piece of galvanized sheet was then pre-bent with 1″ dowels to conform to the curvature of the bottom corners of the frame and also tacked in place. Addition of the grooved runners completed the box.

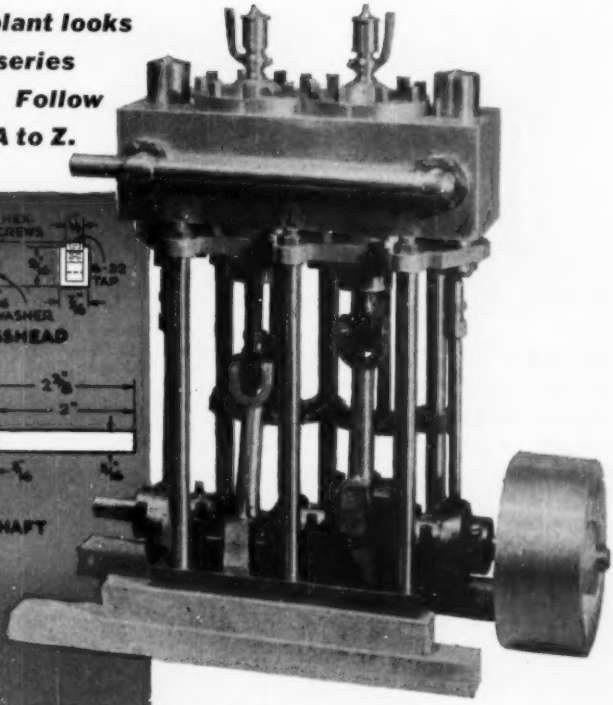
Covered drawer. The drawer-guide assembly also was covered with galvanized sheet on the lower face. Thus, the breadbox has a built-in cover. This assembly was installed in the cabinet by resting the supports on ¾″-square stock nailed to the front and rear cabinet frame. The maple top was then attached with long wood screws driven upward through the horizontal face strip in front and ¾″-square strip at the rear.—*Stanley Lehrer, Pompton Lakes, N. J.*

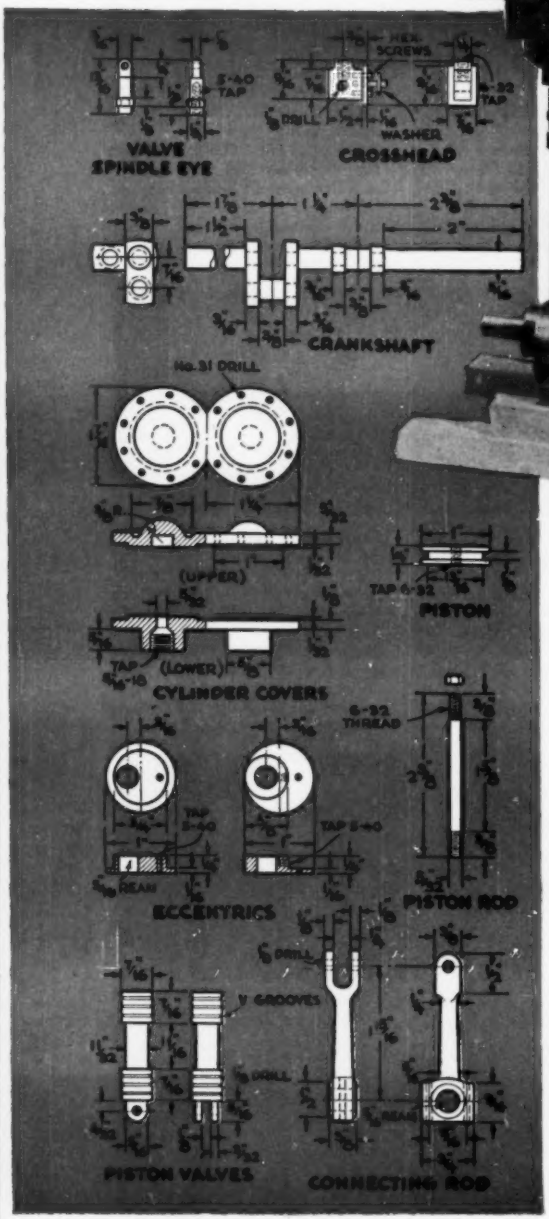


Model Marine Engine Requires No Castings



Building this power plant looks tricky, but it is just a series of simple operations. Follow them in photos from A to Z.





By C. W. Woodson

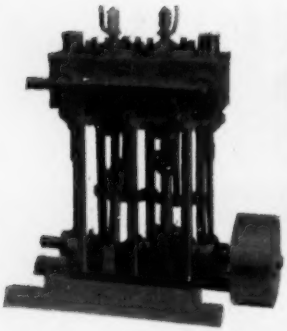
ALTHOUGH the little two-cylinder steam engine above has been simplified for easy construction, this does not show in performance or looks. The model has two double-acting cylinders with inside-admission piston valves. Bore is 1″ and stroke ⅝″. Steam is exhausted through ports drilled in the cylinder walls, greatly simplifying the valve gear.

Reverse gear has been omitted for simplicity, but the engine can be made to run in either direction by resetting the eccentrics. Slip-eccentric reversing could be added easily.

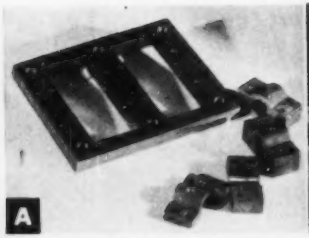
With 75 lb. of steam or air the engine will kick over at about 1,100 r.p.m., providing ample power for a 48″ to 60″ model boat.

All parts are machined from scrap-bin pieces of brass, bronze, dural and steel. After the final assembly, pour a bit of water-diluted Noxon silver polish into the cylinders and valve liners and rotate the crankshaft by hand to lap the moving parts to a smooth fit. Then wash the polish out, oil all parts, and full steam ahead!

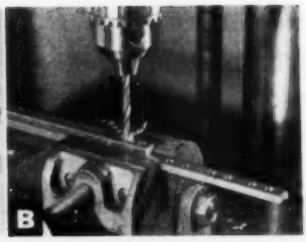
Please turn the page for A-to-Z photos.



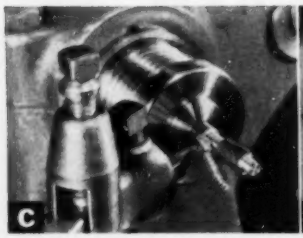
Here are the 26 steps in the construction of the engine.



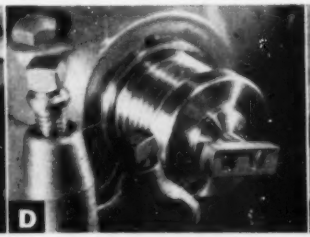
Base and main bearings. Brass base plate, ¼" thick, is cut out for two crankcase wells. Large holes, tapped 10-32, are for supporting columns; small holes, tapped 4-48, are for bearings. Main bearings are two pieces of ¼" brass soldered together for machining, then unsoldered to form upper and lower sections.



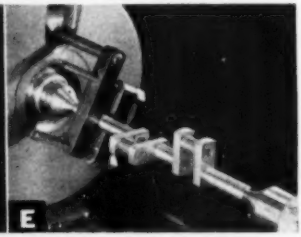
Crankshaft webs are cut from steel bar stock, 3/16" by ⅜". Shaft holes are drilled 7/16" apart, using jig to assure uniform spacing. After drilling, the webs are cut off, stacked in a drill-press vise and reamed to make absolutely certain holes are spaced right. Ends of webs are machined later in the lathe.



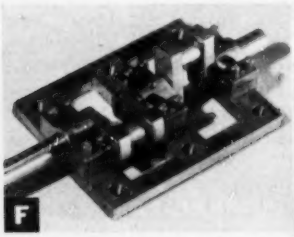
Crankpins and crankshaft ends are made from 5/16" drill rod. Turn both ends of the pins and the inner end of the shaft sections .002" oversize for a force fit in the 3/16" reamed holes in the webs. As no truing cut is made on the crankpin surfaces, the drill rod should be held in a collet or indicated true.



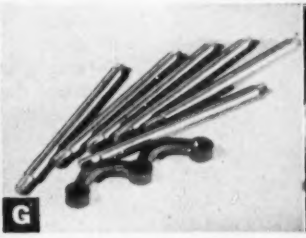
Web ends are finished and brought to dimension in the lathe. As each web is forced onto a shaft or crankpin section, it is chucked and turned to an 11/16" radius from the center of the far hole. It is not necessary to pin the force-fitted webs to the shaft, but driving pins in undersize holes is extra insurance.



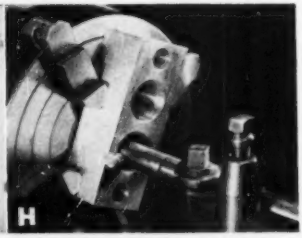
Completed crankshaft is set up between centers and tested for accurate alignment. Crankpins are set at 90°, giving shaft a smooth-running quality with four evenly spaced impulses to each revolution. This allows it to run without a flywheel, although performance is improved if one is used. Chances of stalling are also lessened.



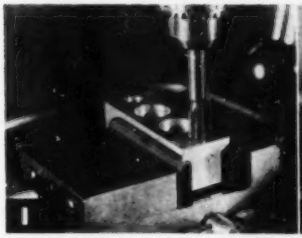
All set up. Prior to installing crankshaft, main bearings are aligned by slipping them on a straight piece of 5/16" drill rod and clamping in position. Holes are then drilled in base for mounting screws. All hex-head screws are turned from ⅜" steel hexagon rod and threaded 4-48. Corners of hex heads are rounded and polished.



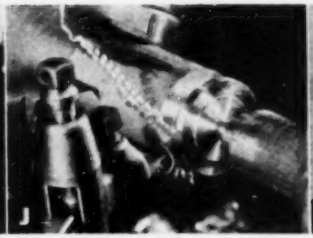
Crosshead-guide support, shown with columns, is cut from ¼" brass plate. Three holes are drilled first, using the base as a spacing jig, and then layout of shape is made, using holes as reference points. Columns are ⅛" drill rod cut to length, shouldered for ¼" at bottom, ⅜" at top and threaded 10-32 at both ends.



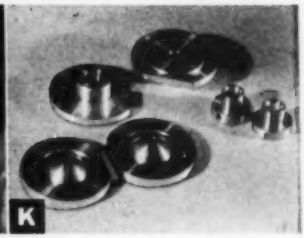
Cylinder block is solid chunk of brass or bronze. Lay out centers for cylinders and valve-insert holes and bore out 1"-dia. cylinders in lathe. Make final pass with a honed, round-nose boring bit fed slowly for maximum smoothness. Cylinder is lapped with Noxon silver polish after assembly, then washed and oiled.



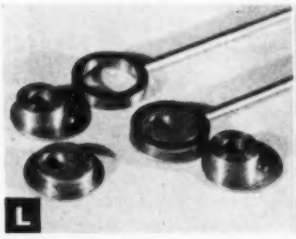
Valve-insert holes are reamed ½". Intake and exhaust ports are drilled. Valve liners—½" brass tubing—are drilled in one wall. Liners are then turned 180° to line up holes with ports and locked with set-screws in block end. Steam-inlet holes are drilled through block and one wall of liner from front of block.



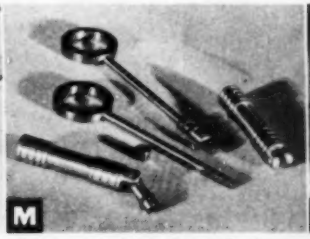
Cylinder covers are turned from 1½" brass rod. Inside face of upper and lower covers are turned to a snap fit in cylinder bore, using cylinder as gauge. Then they are cut off, reversed in the chuck and finished. Piston-rod packing-gland hole should be drilled and tapped in lower cover before cutting off.



Packing glands (at right in photo above), are turned from ⅝" brass rod and threaded to fit lower cylinder cover. Gland is drilled and reamed 5/32" for piston rod and upper end of hole is counterbored for packing. Four 1/16" holes in flange are for adjusting pin to tighten flange on graphite packing.



Valve eccentrics are made in two parts and joined by a single setscrew. The body or bearing was turned in the three-jaw chuck; the cover plate with off-center collar, in four-jaw chuck. The collar is drilled in the lathe, then used as a jig to locate the hole in the body. Straps are thick-wall tubing of proper inside diameter.



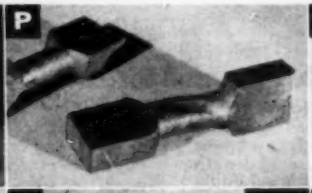
Piston valves, turned from mild steel, should be perfect fit in valve liners. Oil grooves are cut with V-shaped cutter bit. Lower ends are slotted and drilled for adjusting eyes, which are threaded onto eccentric rod and held in proper adjustment by lock nuts. Rods are threaded into eccentric straps.

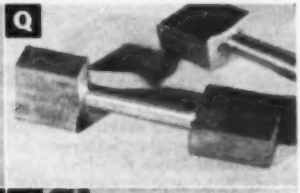
Cylinder-block support is cut from 3/16" brass plate. Holes for supporting columns must match those in base. Support is chucked in lathe and bored to receive the ⅝" collars of the lower cylinder covers. Six No. 38 holes for the screws that join plate to underside of block are then drilled according to the layout.

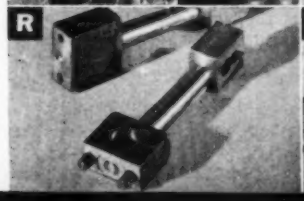
Connecting rods, developed from lengths of steel bar stock, are made in successive stages: (O) The steel bar is centered in the four-jaw chuck, centerdrilled at the free end, and supported by the tailstock center while the middle section is rough-turned. (P) The big end is then clamped in a vise, the rod heated almost white hot and the small end bent at right angles to the big end. (Q) When cool, it is set up in the lathe again and turned to finished size. (R) The little end is then cut out and filed to shape and the big end drilled for the two bearing-cap screws. The bearing cap is cut off the big end, the meeting surfaces smoothed, and then joined with the two cap screws.

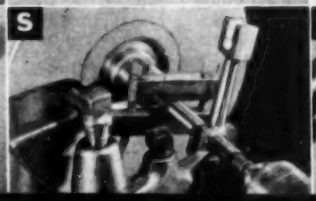
The crankpin hole is then drilled and reamed 5/16". (S) The big end is clamped on a mandrel and turned to shape, and the little end is drilled for a ⅜" rivet that links it to the crosshead. (T) The finished con rod looks like this after machining.

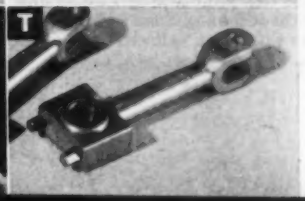
Turn the page for the six final steps.

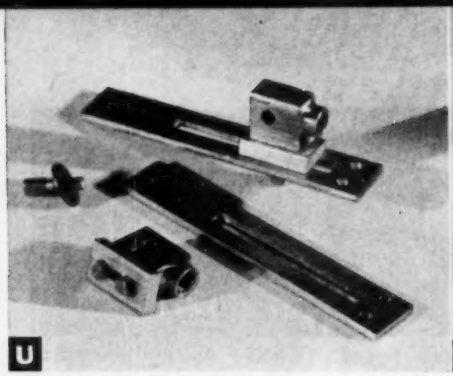






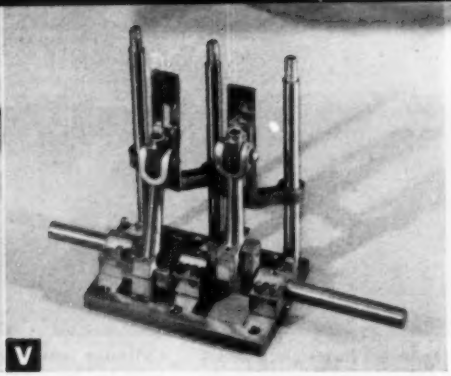






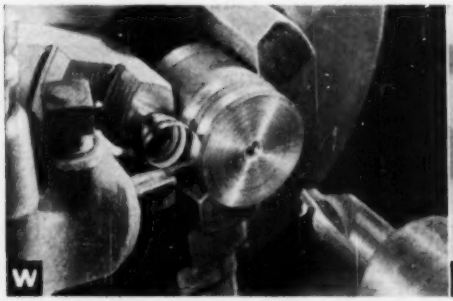
U

Crossheads are shaped from ¼" brass and a slipper of 1/16" brass is soldered on foot. Any error in the crosshead-guide support can be made up by altering the thickness of the slipper plate. The heads of two hex-head screws ride in slotted crosshead guide; setscrew and washer hold assembly together.



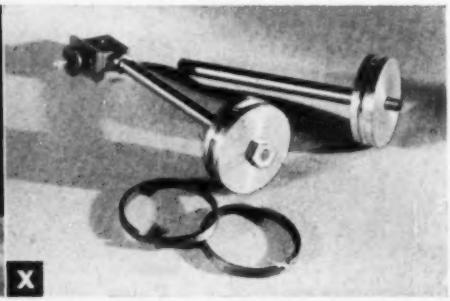
V

Trial setup. Smooth action of moving parts is checked by setting up lower half of engine and rotating crankshaft by hand. Crosshead-guide support should be placed in proper position on columns to check crosshead travel in slot. Upper ends of guides are later supported by bracket on upper assembly.



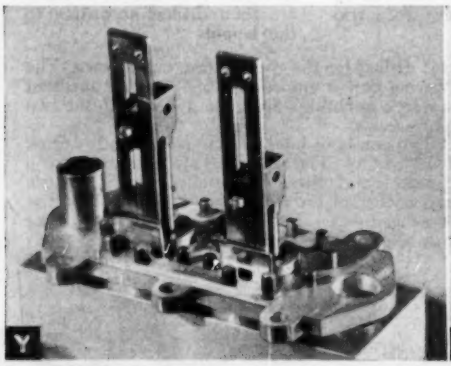
W

Pistons are turned from brass or dural rod to an easy fit in the cylinders. Parting tool is used to cut groove for piston ring. Center of piston is drilled and tapped for 6-32 thread on upper end of piston rod. Piston is then faced, cut off and reversed in the chuck for facing opposite end and bringing to dimension.



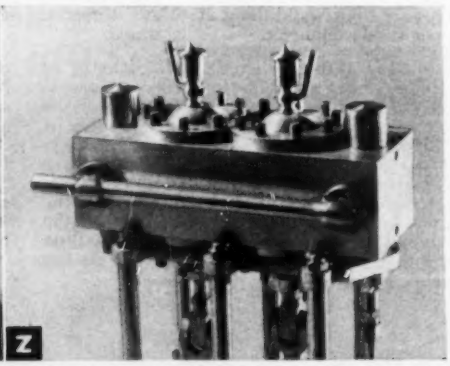
X

Cast-iron piston rings, of standard 1" size, are purchased commercially and fitted to pistons. Lower end of piston rod is threaded 6-32 to fit in crosshead. Lock nut is tightened against top side of piston after upper end of rod is threaded into center hole to prevent piston from working loose on piston-rod threads.



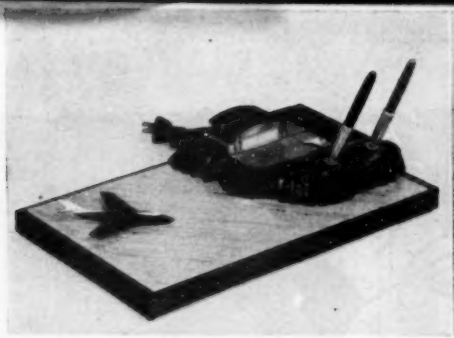
Y

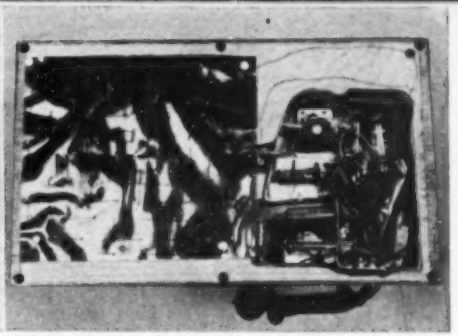
Upper assembly is tested for smooth action. Bracket for upper ends of crosshead guides is cut from brass angle. Setscrews holding washers on crossheads have shoulders turned to length that will bring washers up against slotted guide without forcing them tight. Setscrews join cylinder support to cylinder.



Z

Petcocks on cylinder covers are dummies but could be drilled and used as gravity-feed oil cups. A displacement oiler should be fitted for model-boat use. Caps for valve liners are drilled No. 50 to vent space above valves; they are turned to a snap fit. Intake manifold is ¼" tubing soldered into turned fittings. END





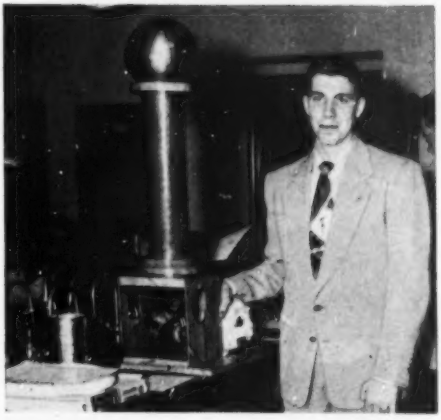
Desk Set Gets Music. Turn the penholders of this desk set and a five-tube radio plays through a 2" oval speaker under the seaplane hangar. The opal-glass front of the hangar is the tuning dial.

Mahogany was used for the base, land area and large flying boat, the sea being represented by oak plywood with the grain running diagonally. The hangar walls, penholders, small aircraft and parts of the big one are gold-plated brass. Built by Wing Comdr. J. R. Frizzle of the Royal Canadian Air Force, the 2½" by 9½" by 16" set has a loop antenna inside it.

Craftsmen Put Electricity to Work

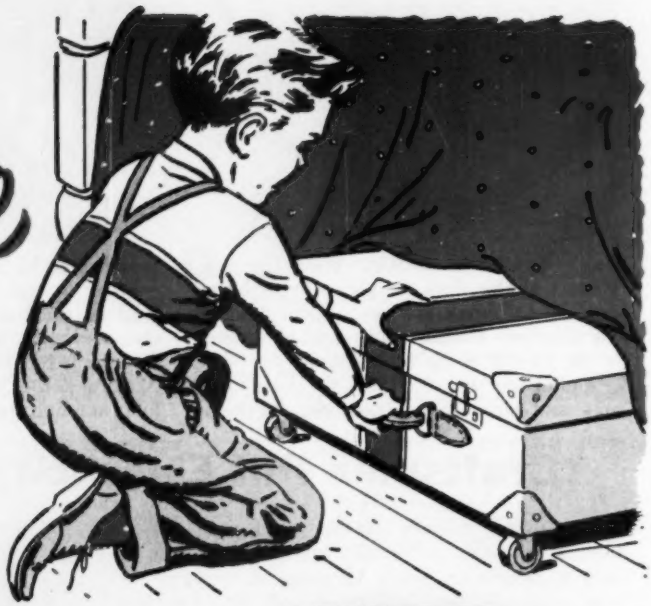
Light Beam Steers Boat. A photocell slowly turning atop this 30" model cabin cruiser puts human fingers at its helm. Cruising at five miles an hour, it can be started, stopped and steered by triggering the photocell with spotlight flashes. Gilbert M. Turk of Paramus, N. J., used five miniature motors and a ratchet relay in the circuit. A single vacuum tube amplifies the photocell signal to work a 2-milliampere relay that operates stepping relay.

Flashlight Radio. Ingeniously housed in an L-head flashlight case, this little receiver has an earphone where the lens and reflector used to be. A 2E32 tube, 1½- and 22½-volt batteries and a simple circuit tuned to the strongest local station all fit into the barrel. Made by Richard D. Sklenar of Havana, the set plays with its antenna clip connected to a water pipe, bicycle, or other metallic object. The flashlight switch turns it on or off.

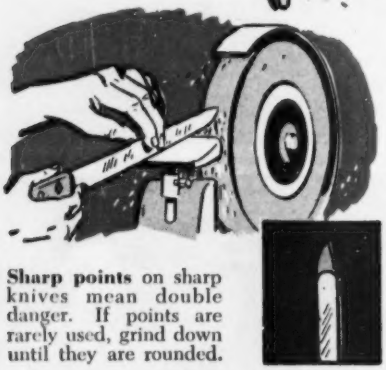


Sparks 6" Long snap about when this model Van de Graaff generator is driven by an ordinary electric motor. Robert Fox, a high-school senior, built it from plans in PSM (Oct. '46, p. 188). Entered in a science exhibition, it won him a recommendation for a college scholarship. The motor drives a silk belt running over pulleys in the base and in the sphere at the top.

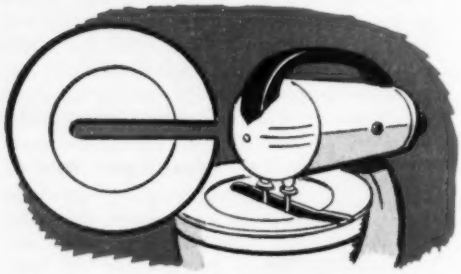
KEEPING THE Home SHIPSHAPE



A toy bin that rides out of sight beneath a bed will store many toys now underfoot. You can make one easily by attaching flush-plate casters to an old suitcase.

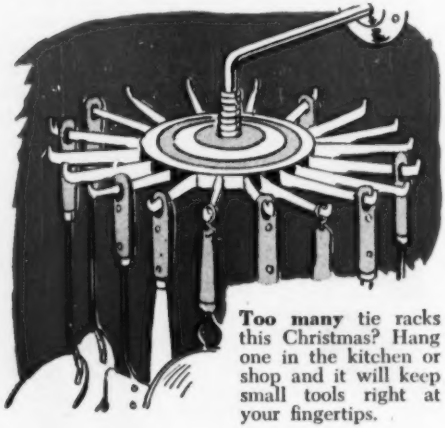


Sharp points on sharp knives mean double danger. If points are rarely used, grind down until they are rounded.

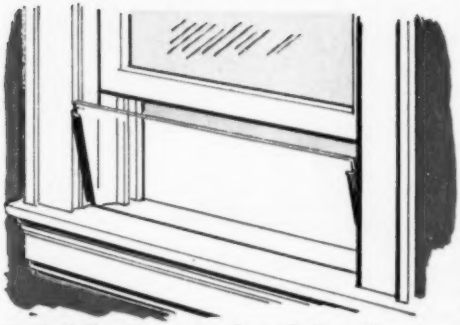


To put the lid on spatters, cover the mixing bowl with a slotted plastic plate. Cut the slot with a jigsaw or coping saw, and smooth edges.

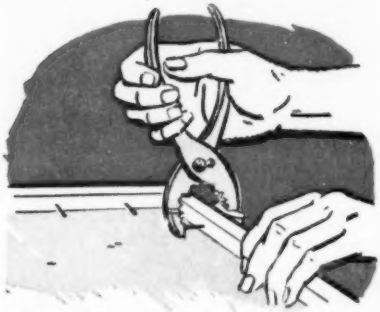
A fishing creel hung low on a closet door is a handy catchall for children's woolen mittens, caps and scarves.



Too many tie racks this Christmas? Hang one in the kitchen or shop and it will keep small tools right at your fingertips.



Draft deflectors are simply made from glass or plywood. Slit rubber hose fastened at each end will keep the deflector firmly wedged between the window jambs.



When framing pictures, try driving in the brads with slip-jaw pliers. Open the jaws wide and, holding the nail in position with the other hand, apply firm, steady pressure.

A jumbo canister set for the cellar can be made from unused ash cans, cleaned up and painted. They'll safely hold rags and paper waste. A can with the bottom cut out and replaced with screening for ventilation will serve as hamper for basement laundry.

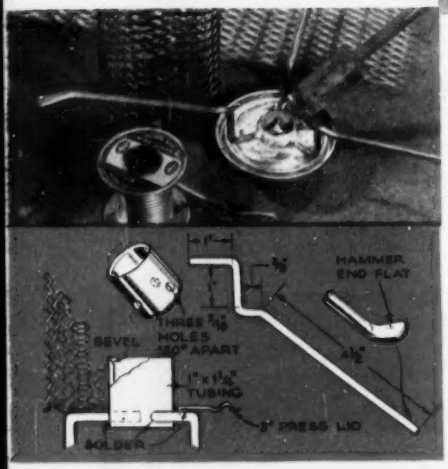
When the heat's on, floors shrink; so now is the time to fix gaps between boards. Clean out cracks and fill with a paste mixture of sawdust, shellac, whiting and color.

A punching-bag platform made from an old tire and tube is less noisy. Fix the tire to a wooden cross and mount it on the ceiling with enough bracing to prevent excessive vibration.

One Evening Shop Projects

USE WAVY EDGE of metal lath for top of chimney. Close seam by soldering, wiring or hooking parts of one edge around the other. Solder legs together at the center and to the socket and can lid as shown below.

HURRICANE LAMPS



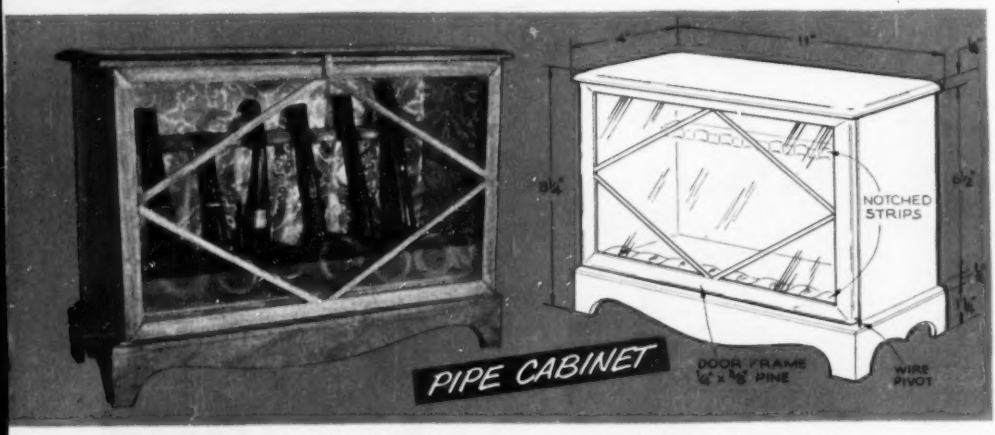
Screen chimneys put these hurricane lamps in tune with the trend toward wrought iron.

Bend three identical legs from 3/16" rod, hammering the ends flat to serve as feet. Cut a 1¼" length of 1" tubing or conduit square and drill three holes near one end. File an inside bevel at the other.

Cut a 1" hole in the center of a paint-can lid, insert the legs in the holes in the tubing, slip on the can lid upside down, and solder the legs to both lid and tubing.

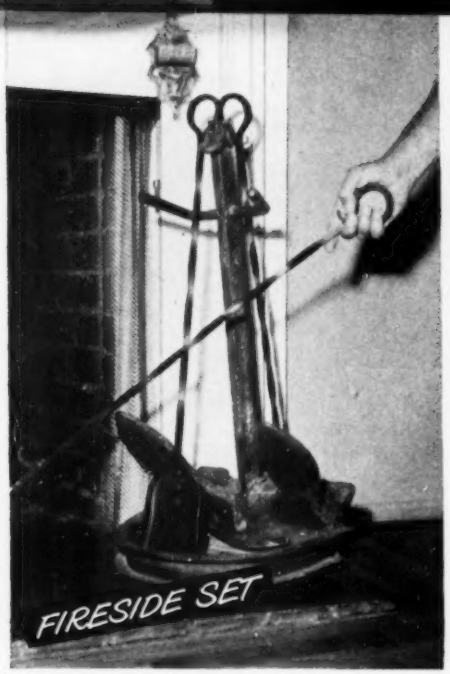
Cut a 9" by 9½" piece of expanded-metal lath with the longer dimension along the wavy finish edge of the sheet. Roll the piece around a rolling pin or pipe, making the cylinder a close push fit on the flange of the can lid.

All parts should be finished by spraying with dull enamel or lacquer. As there are no large surfaces, even a fly sprayer can be used if the paint is well thinned.

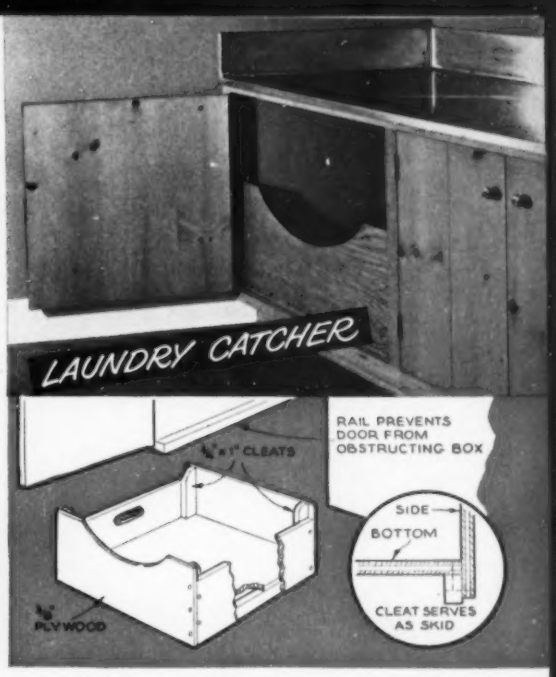


PIPE CABINET

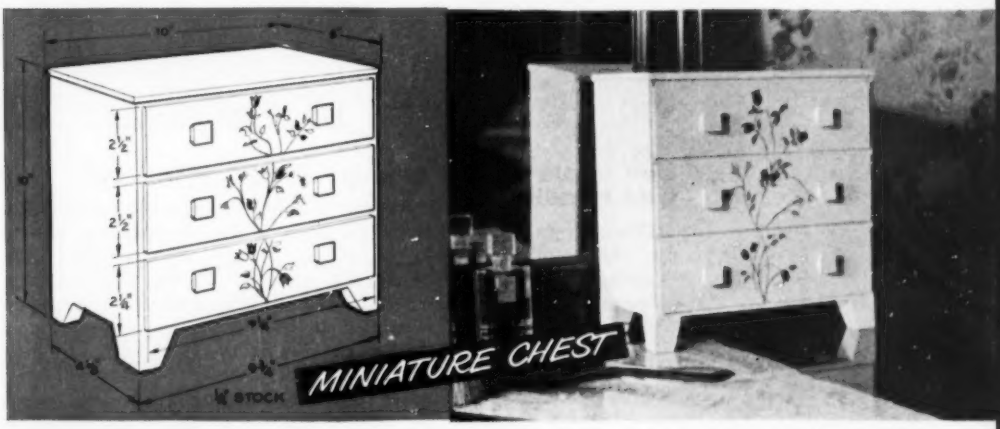
Antique pipe racks that look like this one cost lots of money. But this copy was made of ¾" pine from an apple crate. The parts were assembled with small wire nails and glue and the interior covered with wallpaper. The glass in the door is windowpane with wood strips glued to it. The cabinet was stained a light honey brown and brushed with a coat of clear lacquer.—*John Rogers, Dallas.*



A nautical note was added to our living room when I built this fireplace set around a surplus Navy Danforth anchor. A length of channel was bent and welded to form the base and a metal pan was welded to the channel to make a bottom. Near the top of the shank, two arms of ¾" steel were welded to support the shovel, broom and poker.—*A. J. Kates, Pacific Palisades, Calif.*



Soiled linen can be neatly collected in this kitchen or bathroom compartment. The photo at top shows the easiest way—a half-height plywood front nailed within a hinged-door compartment. The drawing shows a more convenient laundry catcher—a big drawer that can be pulled out for removing and sorting the clothes for washing.—*Hi Sibley, Nuevo, Calif.*

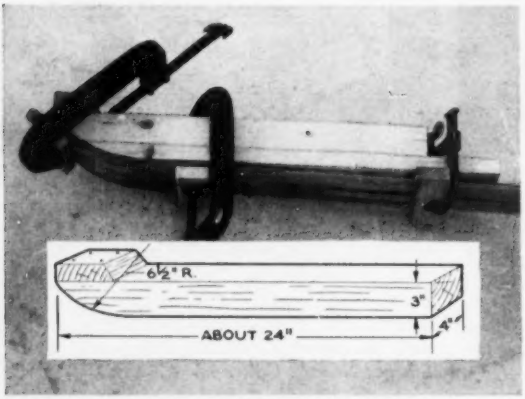


Jewelry, playing cards or cigarettes can be stowed in this 10" high, three-drawer chest. All the parts are birch, except the sides and bottoms of the drawers, which are plywood. The chest is glued and bradded together. After it was painted, the floral design was traced on with carbon paper and then painted in with a fine brush. You could also use decals for decorations.—*Bertram Brownold, Cedarhurst, N.Y.*

How to Restore Curve to Ski

TIPS of wooden skis often tend to lose their curves after long service, making them dangerous to use. To reshape the tips, steam or boil the front 24" of each ski for 30 minutes or more. Then clamp it to a bending form until thoroughly dry. Store skis in a rack that will maintain the curve (right below). Before steaming, sand off all varnish so the steam can penetrate.—*R. S. Wilkes, Keuka Park, N. Y.*

STEAM ski tips until they can be safely bent. It may take up to an hour. Roasting pan on the stove (above) will do the job.



CLAMP steamed ski to a built-up bending form. Clamp the tip first and work back with other clamps. Use wood pads under clamps.

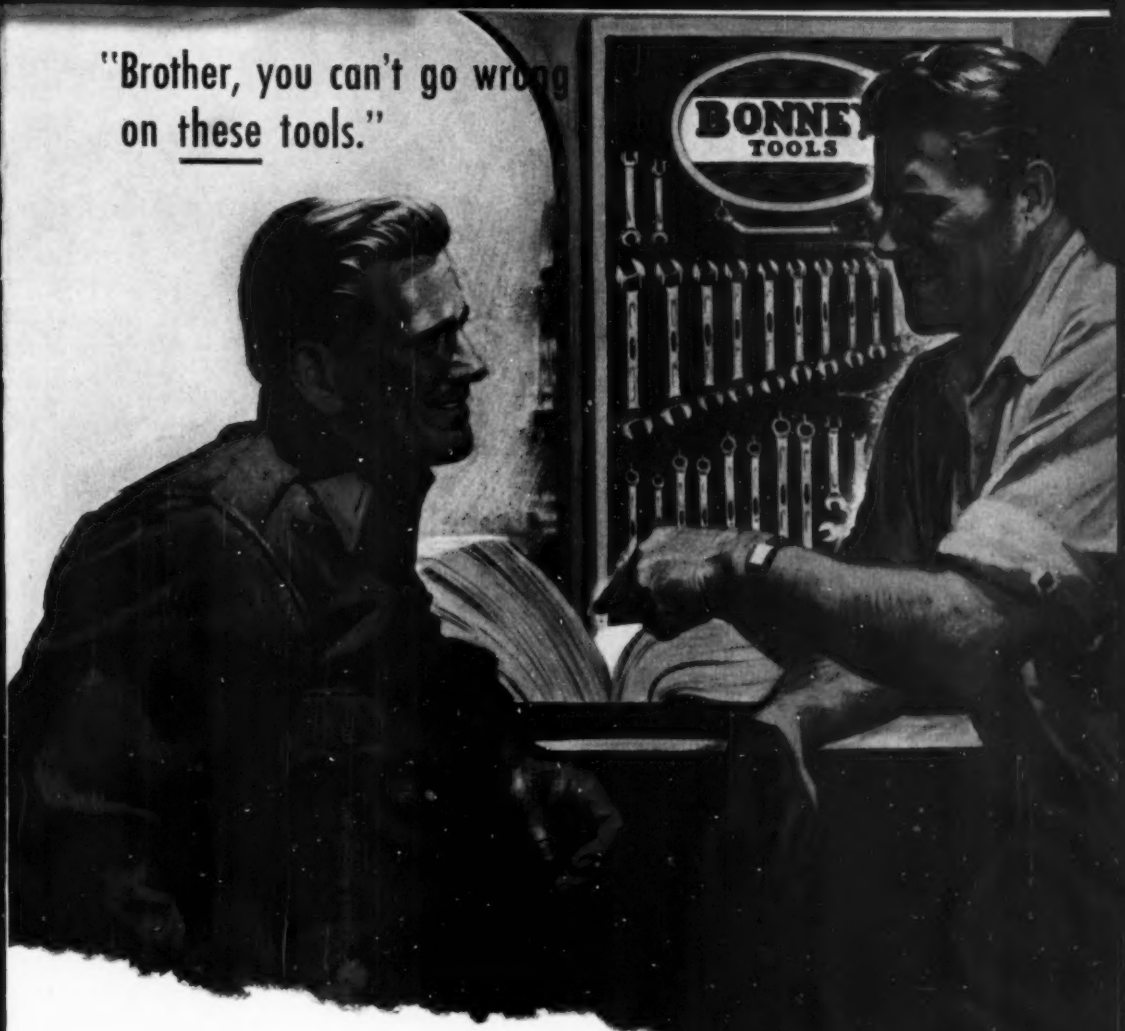
STORE skis as at right to retain curves. Garage wall is a good spot for rack. Adjustable dowel is raised to lock skis in place.

Coil Cools Iron Handle

DURING prolonged use, the handle of a soldering iron often becomes uncomfortably hot. A short length of 6- or 8-gauge copper wire wrapped around the body of the iron will radiate much of the unwanted heat before it reaches the handle.—*A. Trauffer, Council Bluffs, Iowa.*

Money for Oil Left in Tank

WHEN no one is home at our house and a fuel-oil delivery is due, we leave the money in the oil tank. It goes into a simple little gimmick I made by riveting the cap of a jar inside the oil-tank cap. After the money is stuffed in the jar, the jar is screwed to its cap and the tank cover replaced. The jar would also be a handy place to park an extra key to the house.—*Edward C. Robare, North Adams, Mass.*



"Ask any mechanic who *is* a mechanic about Bonney tools. You'll get the straight dope on why they're tops.

Believe me, you get the *best* tools at standard prices. I *know* — I sure check price.

My tool kit is full of Bonney knucklesavers. They have a 'feel' that makes you sure of first class work. That means more dough in the pay envelope.

Another thing! If you're short on cash, take a look at a BON-E-CON* tool. They carry the standard Bonney guarantee."

Remember. Your local Bonney jobber, as well as Bonney, stands behind the tools you buy. He has Bonney tools priced to fit your needs as well as your pocketbook.

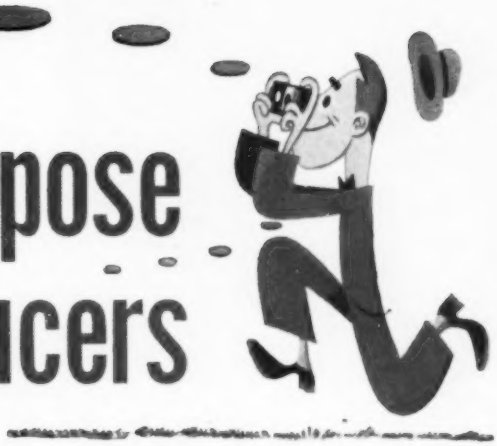
BONNEY
TOOLS

** The new Bonney economy-priced line*

BONNEY FORGE & TOOL WORKS . . . ALLENTOWN . . . PENNSYLVANIA

Street signs photographed in color through a diffraction grating create startling effects. Spectra are brightest against dark background. Both photos were shot at 1/8 second at f/8.

How to Expose Flying Saucers



You're invited to join the Air Force's new project for studying saucers by photographing them through a diffraction grating—a device that reveals the chemical composition of a source of light.

By Ralph Steiner

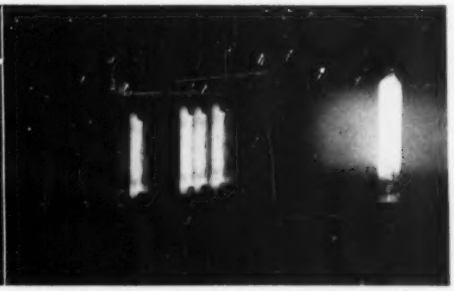
THE U.S. Air Force has set a new squad of 200 detectives on the trail of the flying-saucer mystery. These sleuths are photographers armed with cameras specially equipped to take pictures that may reveal the source of strange lights in the sky. Because similar equipment is available to anybody, you, too, can join the hunt.

And even if you never get a chance to shoot a flying saucer, you can still have a lot of fun with a homemade version of the saucer camera with which the Air Force hopes to separate hoax and hallucination from scientific reality.

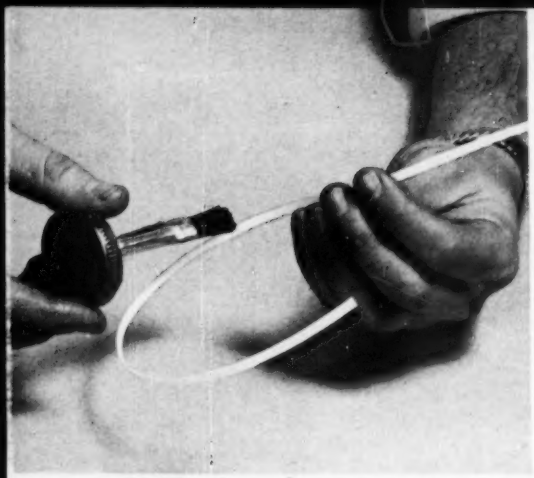
The camera the Air Force will use is the Videon Stereo with twin matched lenses of 35-mm. focal length and a maximum aperture of f/3.5. It takes standard 35-mm. film cartridges. A stereo camera was chosen, not because it takes stereoscopic pictures, but because it offers a convenient means of taking two pictures at the same time.

One lens will shoot a conventional picture. The other—and here we come to the gimmick the Air Force is pinning its hopes on—will be covered by a diffraction grating. This is a glass or plastic plate ruled with extremely fine lines—as many as 15,000 to the inch—scratched on the surface with a diamond point. The original grating is created on a special "ruling machine"—an instrument so sensitive that the heat of an approaching human body can upset its accuracy. Reasonably priced replicas are

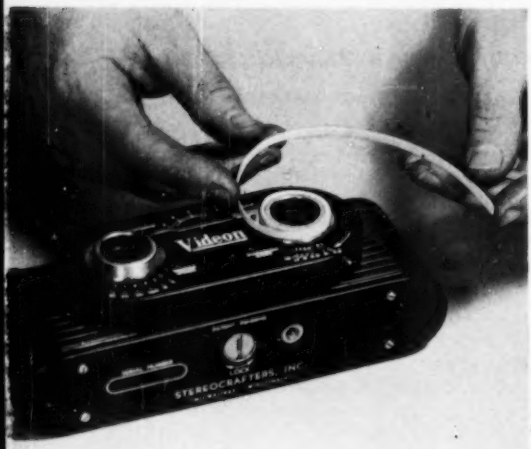
A SOLID LIGHT SOURCE like this mazda bulb projects a continuous spectrum through a grating. Red end of spectrum is most intense.



A GASEOUS LIGHT SOURCE—a mercury-vapor sun lamp—produces a discontinuous or broken spectrum, mostly violet, blue and green.

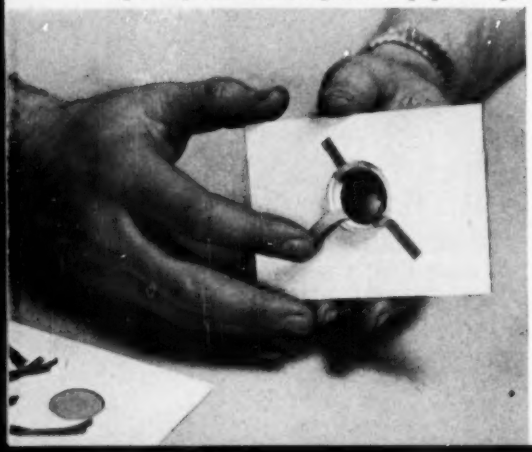


1 TO MAKE YOUR OWN grating holder, cut a cardboard strip a bit wider than lens projection. Coat both sides with rubber cement.



2 WIND STRIP around the front of the lens, loosely at first, then tighter, to form ring ⅛-inch thick. Fasten end with Scotch tape.

3 CUT HOLES the size of your lens out of cardboard square slightly larger than grating. Tape ring to card with gummed paper strips.



made by using this costly original as a mold.

Like a prism, a diffraction grating breaks up light into its component colors. The fine slits in the grating bend the light rays as they pass through—separating them into bands that range from the violet end of the spectrum through the blue, green, yellow and orange sections to the red end of the spectrum. The way in which these bands are projected onto the film reveals the nature of the light source.

Light Source May Be Solid or Gaseous

For example, the light from a mazda bulb produces an unbroken or continuous spectrum, indicating a *solid* light source—the heated tungsten wire. On the other hand, a fluorescent tube projects a number of separated bands of light—a discontinuous spectrum—indicating a *gaseous* light source.

It is not necessary to use color film. The Air Force itself is using black and white. It is the arrangement and intensity of the light bands on the film that provide the information the scientists want.

Suppose you send the Air Force two saucer pictures photographed through a diffraction grating. The first shows a continuous spectrum of greatest intensity at the red end, the second a discontinuous spectrum most intense in the area which would be green on color film.

The trained analyst will interpret the light source in the first photo as a solid (continuous spectrum) of relatively low temperature (greatest intensity in red area) and conclude that your first saucer is probably a reflection of a mazda light source on the ground—a car headlight perhaps. Your second photo, indicating gaseous matter at high heat as the light source, will most likely be set down as a meteor—the well known "green fireball" saucer.

Of course if the Air Force discovers that your negative indicates the existence of an element not found on this planet, you and your camera will go down in history.

Diffraction Gratings Have Other Uses

Like the photographic technician, astronomers, criminologists and industrial scientists use diffraction gratings to analyze unknown materials. The astronomer shoots a new star through a grating to discover its composition. The FBI agent puts a bit of the dead man's cuff in the crater of an arc light and studies its spectrum.

You don't need a Videon Stereo camera to

join the saucer hunt. Any stereo camera will do. In fact, when I phoned the Pentagon to inquire whether the Air Force would be interested in photos taken with single-lens cameras, I was assured that *any* shot of a flying saucer made through a diffraction grating—even with a box Brownie—would be more than welcome.

You can get replica gratings from the Central Scientific Co., 441 Clinton Avenue, Newark, N. J. For a small lens with front opening no greater than 20 mm., order their grating number 86705, with a ruled area 20 mm. by 22 mm. on a two-inch-square glass. It costs $3.53. For larger lenses, they have grating number 86706, with a ruled area of 60 mm. by 70 mm. on a 82-mm. by 100-mm. glass, for $12.83. The pictures show you how to mount your grating.

A few general suggestions. First off, remember a flying saucer won't wait. Have your camera loaded and ready, tripod-mounted if possible, focused at infinity. Use panchromatic film. The highest shutter speed consistent with good exposure will help freeze your saucer.

Experiment to Get Exposure

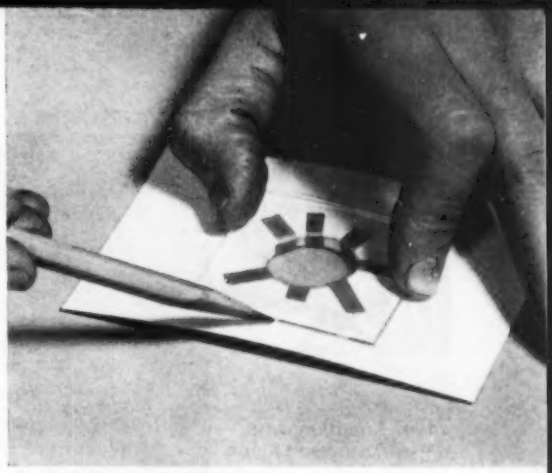
The problem of what exposure to use is tricky. It is impossible to give a general prescription suitable for both a dark object in a cloudy sky and a shining fireball at night. Perhaps the best idea is to experiment with such readily available light sources as the moon, Venus, neon lights, sodium arcs, incandescent and fluorescent lamps. (Just for fun, try a few color shots.)

In daylight hours, set your camera for prevailing weather conditions. At night the lens should be wide open and the shutter at 1/25 second. If your saucer is brilliant, you can stop down your lens and speed up your shutter in a hurry.

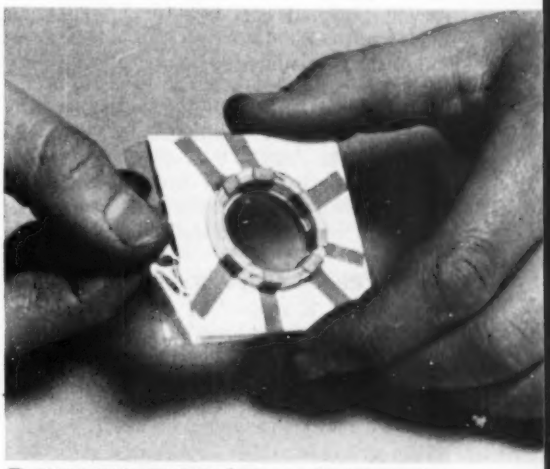
It will help the Air Force to determine the size and elevation of the saucer if you can manage to include a landmark such as a tree, house or telegraph pole in the picture. After shooting, mark the spot where you stood, or measure it off in two directions and write down the measurements.

Don't develop the film. Make a note of the lens and shutter speed, describe the conditions under which you shot the picture and mail this data and film to:

Air Technical Intelligence Center
Wright-Patterson Air Force Base, Ohio
Attention: Unidentified Aerial Objects Investigation.



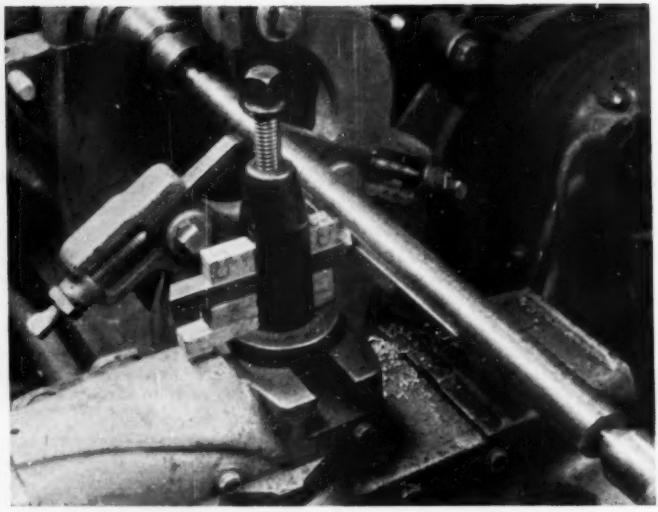
4 CENTER THE GRATING face up on flat side of card over hole. Trace around glass and cut card to size. Cut second card just like first.



5 NOW BIND GRATING between the two cards with Scotch tape. When grating is on camera, only plain glass is presented to weather.

6 MOUNT GRATING with lines running up and down. Aim so the subject is offset near side of field, to avoid cutting off the spectrum.

NEW Shop Ideas

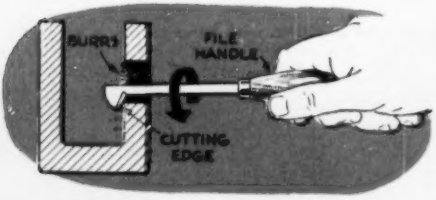


Lathe Cuts Keyways. Long keyways, often longer than could be cut with a milling attachment or small milling machine, can be cut in any lathe having powered carriage feed.

The shaft is mounted between a ball-bearing center in the headstock and a solid center in the tailstock. A steady rest is clamped tightly on the shaft to prevent it from turning while the back gears drive the carriage along the bed ways. A cutter bit, ground to the exact width of the desired keyway, is clamped on its side in the tool post, level with the center of the shaft.

Take light cuts at medium feed with your hand on the lead-screw engaging lever, releasing it if the tool hogs in to avoid straining the lead screw.—*Will Thomas, Buffalo.*

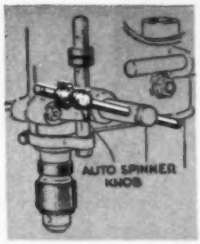
How to Check Shaper Table. To test the accuracy of a shaper or milling-machine table, set up a fairly long piece of bar stock on parallels and make a surfacing cut along its length. Then remove the work piece, turn it end for end and remount it on the parallels. Set up a dial indicator on the tool holder or milling arbor and pass it over the piece to determine the runout.—*F. Strasser, Santiago, Chile.*



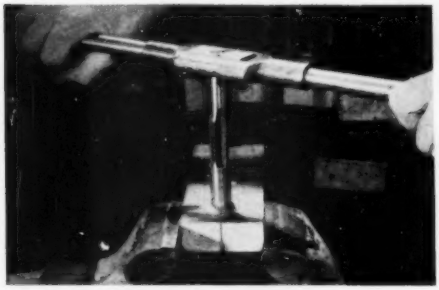
Tool Removes Inside Burrs. When you drill through tubing or across grooves, burrs often build up on the inside surfaces where they cannot be reached with ordinary tools.

This tool, which you can grind from a narrow file or an old boring tool, will reach inside to get the burrs off. The hooked end of the tool is inserted, pulled back and turned.—*W. Walkinshaw, Whittier, Calif.*

Steel Wedges Mike Grooves. A pair of ground steel wedges will deliver the width dimension of a piston groove out to where the micrometer can read it. The tapered faces of the wedges are slid against each other in the piston groove until they stop. An accurate reading of groove width can then be taken off the parallel outer faces of the wedges.—*F. McGuckin, Ridgewood, N.J.*

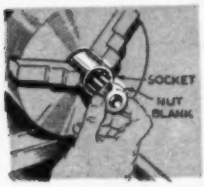


Spinner Aids Quill. A steering-wheel spinner knob, obtainable at any auto-supply store, helps in drilling deep holes in the drill press. It is especially handy on drills having a single feed handle as the swivel action of the knob makes it unnecessary to change the position of your hand as you force the drill down into the work.—*Victor H. Lamoy, Upper Jay, N.Y.*



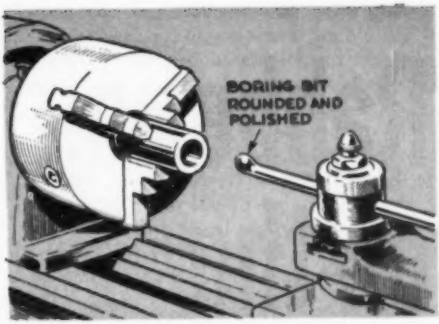
Tubing Held Safely in Vise. A piece of scrap wood drilled and slotted through the hole will make a crude collet to hold light tubing between the jaws of the vise without crushing it.

The hole should be the same size as the tubing to be held.



Socket Chucks Nuts. A 12-point socket from a mechanic's wrench set can save plenty of elbow twisting when making up nuts from hex rod.

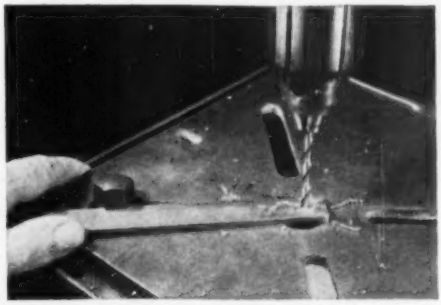
The rod is first drilled to tapping size and the blanks cut off in the quantities required. Then the socket is chucked in the lathe and the nuts slipped quickly into it for tapping. The tailstock is pushed along the bed by hand to bring the tap up to the nut and pressure is maintained until the tap cuts the full thread. Then the lathe is reversed to allow the threaded nut to push the tap and tailstock back out. The finished nut is removed and the next blank inserted as the lathe is stopped and started forward again.—*R. Carlson, Vancouver, B.C.*



Burnish Bushings for Longer Life. To reduce running-in time and make bearings last longer, try burnishing them when you bore them out.

Immediately after the finishing cut, and using the same feed but a slightly slower speed, run a carefully rounded and polished boring-bar tool bit through the bore. Moderate pressure of the polished tool bit burnishes the bushing, leaving a smooth, highly polished, work-hardened surface that will hold its fit long after other bushings have become sloppy.

Very small bearings can be burnished by running a piece of hardwood with a ball-shaped end through the bore by hand at low speed. The hardwood ball should be a tight fit in the bore.—*Fred F. Davis, Edmonton, Alberta.*

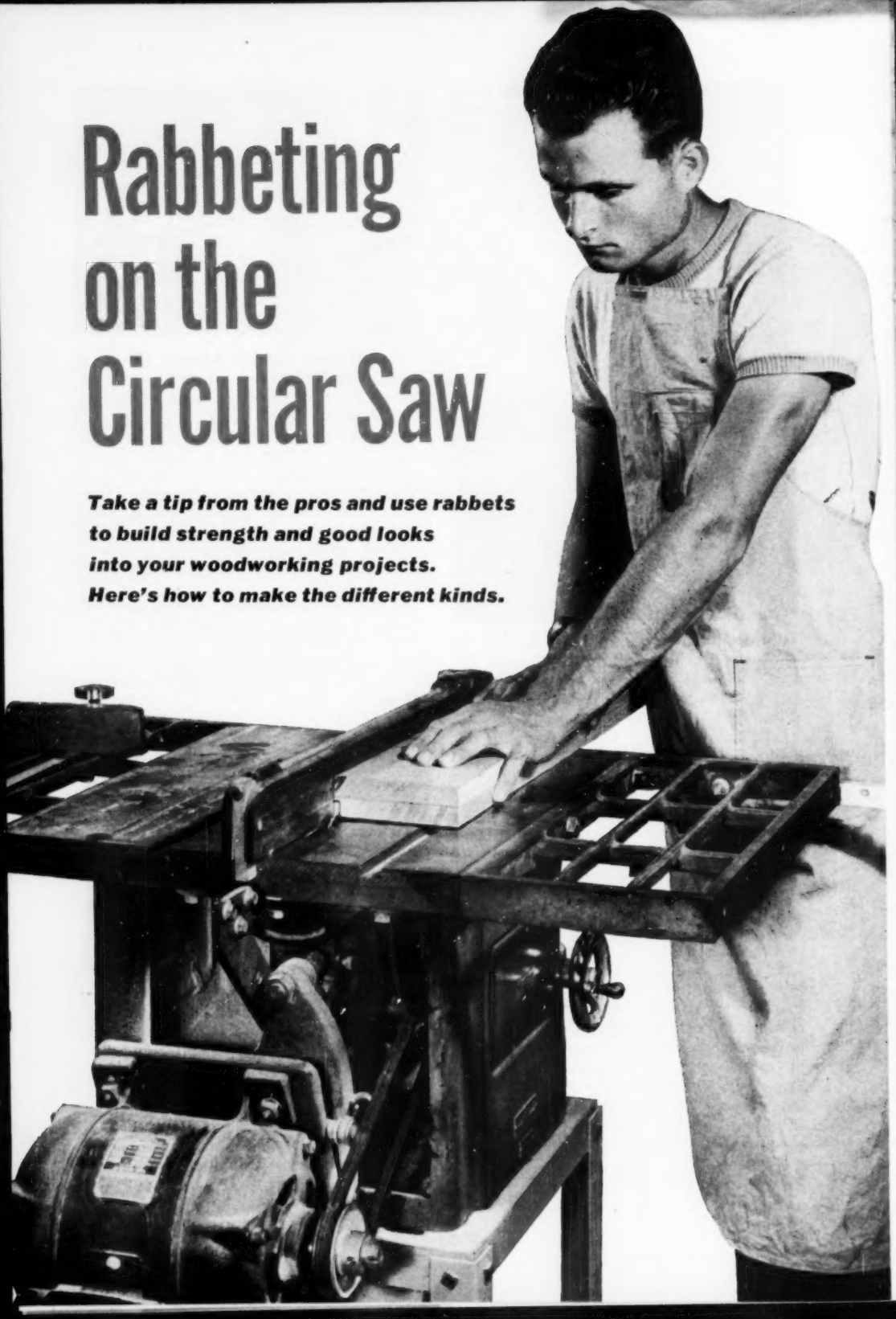


Bolt Adds Safety to Drill Press. A large bolt inserted in a slot in the drill-press table may save you the frightening experience of having a job spun right out of your hand as the drill bites into the metal.

The bolthead prevents the piece from riding up and over while the shank, slightly smaller than the width of the slot, holds the work against the twisting action of the drill. No nut is needed and the bolt can be quickly removed when not in use.

Rabbeting on the Circular Saw

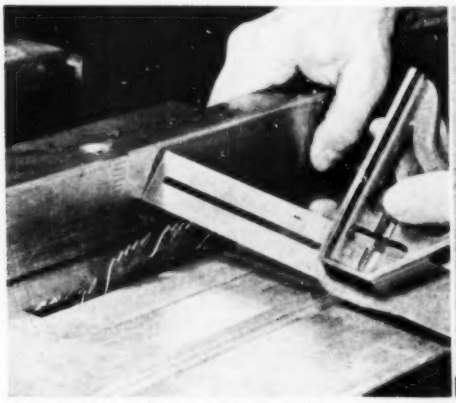
Take a tip from the pros and use rabbets to build strength and good looks into your woodworking projects. Here's how to make the different kinds.



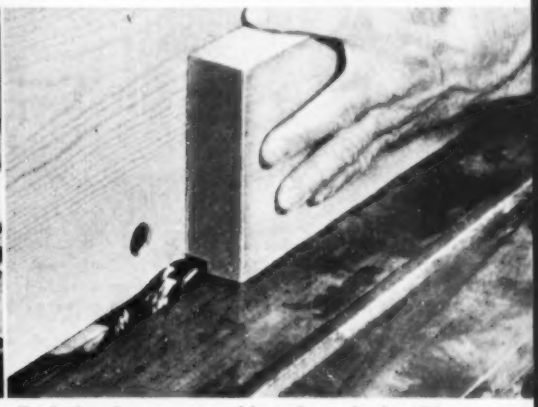
By Edwin M. Love

A RABBET is a step cut into a board. It is one of the best ways of connecting wood to wood or to other material. In a joint, it brings six surfaces together for gluing instead of the butt joint's two. For house siding, it makes a weatherproof as well as decorative joint. In sash frames, it receives the glass. In cabinetwork it is indispensable for concealing corner joints and for all-around strong construction.

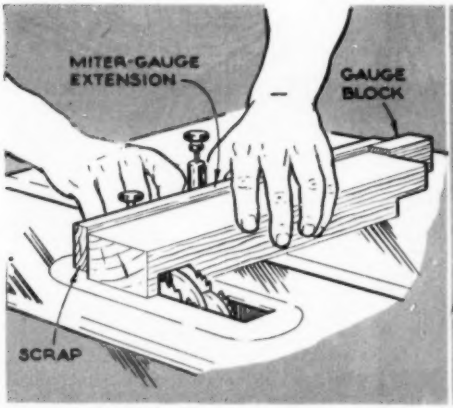
You can cut rabbets with your circular saw just as it is—just make a double cut to remove a rectangular strip from the edge of a board. A dado head or set of wobble washers, though, will cut a rabbet in one pass. Either also guarantees a sharp inside corner, not always obtained with the ordinary saw blade, which requires the depth of cut and rip fence to be set precisely to avoid undercutting the corner on the second pass. The following photos give further dope on the care and feeding of rabbets.



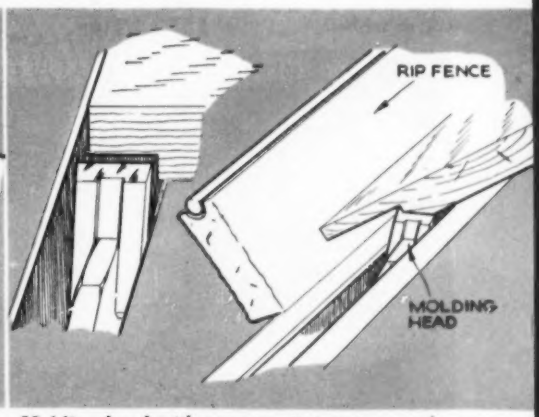
Combination blade is all you really need to cut rabbets on your circular saw; two passes over the blade do the job. The trick is adjusting the fence and blade height to the depth of the rabbet. Only if these adjustments are correct will you get a crisp corner.



Dado head can cut a rabbet of standard width in one pass. Bolt an auxiliary fence to the rip fence and cut into it so that only the required width of the dado blades projects. Wide rabbets are cut by making several passes over the fully exposed dado head.



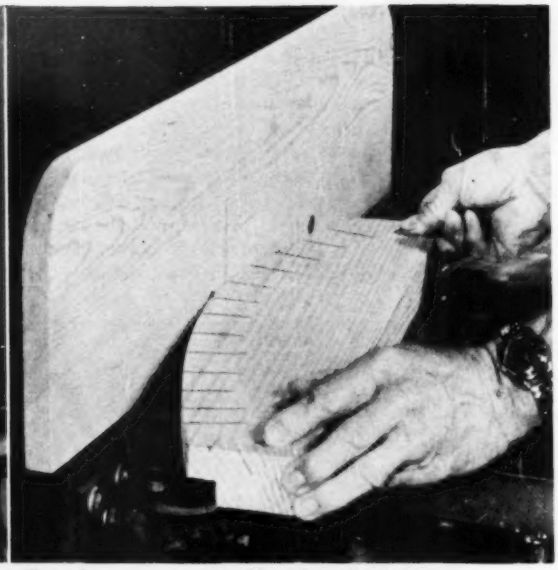
Cross-grain rabbets are best cut by backing up the work with scrap wood to prevent blade from tearing wood at end of cut. For repeat operations screw a gauge block to the wooden miter-gauge extension to locate pieces of same length for rabbeting.



Molding head with square cutters cuts smooth-bottomed, clean rabbets. It is used like a dado head. At right, molding head bevels a siding board already rabbeted. Arbor or table is tilted and trial cuts made to locate fence.

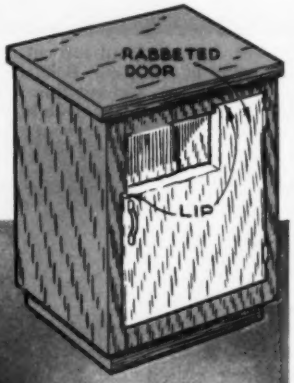
Please turn the page.

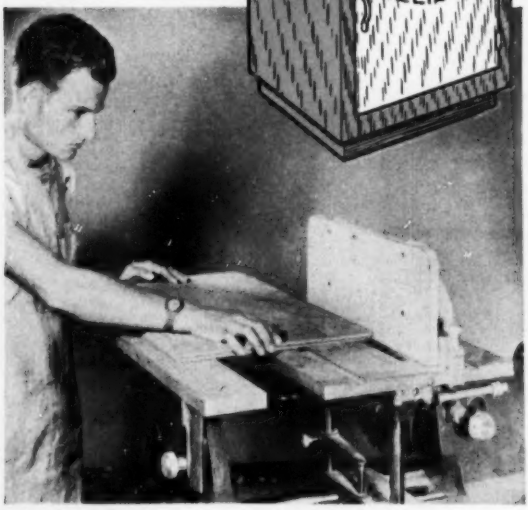
Blind rabbets are closed at one or both ends. Work is lowered onto blade and advanced until it meets stop clamped to fence. Round ends of cut are then chiseled out square.

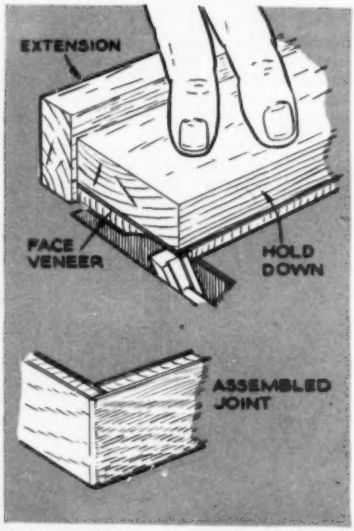


Outside curves are rabbeted with dado or molding head by running edge against fence. Center of cutter is marked on fence and radius lines on work are aligned with it successively.

Lip door, rabbeted all around, is carpenter's favorite for cupboards. Time is saved by making the rabbet ½" by ½" which permits sawing both sides at one setting. High fence holds door steady for second cut of rabbet.

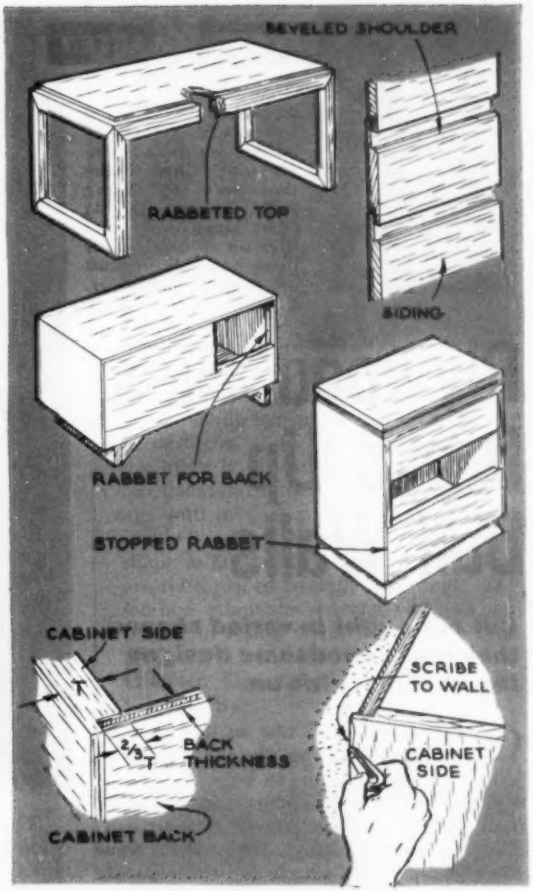




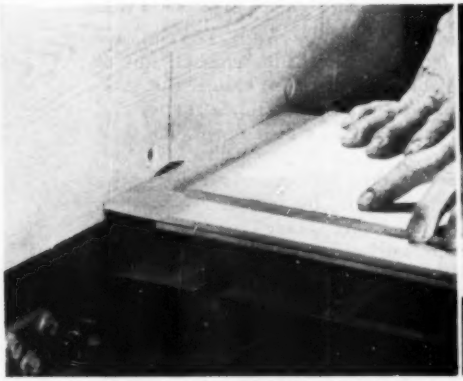


Box or cabinet corners, if constructed of veneer panels, can be almost completely concealed by rabbeting right up to the face veneer. Use a block over the panel while cutting to prevent the veneer from lifting off. After assembly trim off the projecting edge and round the corner. This type of corner should be glued.

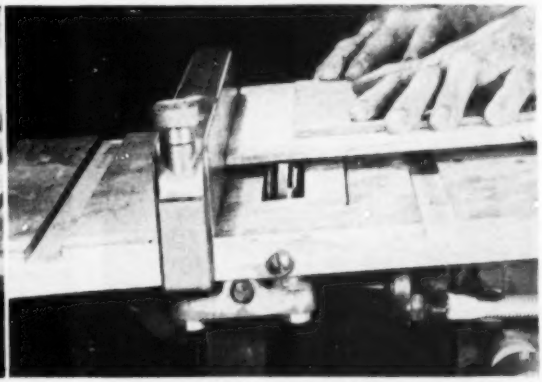
Most common rabbets. Frame of coffee table at right is rabbeted to receive table top. Siding takes full advantage of rabbets to form weatherproof joint. At center are two methods of fitting backs into cabinets with rabbets. Note that rabbet is usually cut about two-thirds into the thickness of the wood. When cabinet is to fit against a wall, rabbet is cut extra deep and projecting edge shaped to fit contour of wall (bottom). Cut extra deep if wall is irregular.



Raised panels such as those used in traditional furniture are among the many decorative uses of rabbets. Saw all around the piece on both sides with the blade set at an angle to bring out a slight taper.



Panel is finished by trimming original cuts with blade set carefully to proper depth. Sand off slight unevenness where blade crossed last cut made. Also sand corners of raised surface.



Dado or molding head can be used to cut raised panel. Work is done entirely from face of piece. Tilt arbor for slight taper and cut shoulders first. Then shift fence and raise cutter to continue the taper to the edge of the work. Sand off slight difference between two cuts.

BEFORE

AFTER

DRAB ENTRANCE HALL at left was broken up by sliding wardrobe panels and other doors that prevented using wall decorations. At right, striated-plywood tiles on sliding panels liven up hall without affecting use of doors.

Plywood Tiles Dress Up Dull Walls

Cut or bought in varied shapes, they make handsome designs that you just glue on.

OUR entrance hall was so dull that we considered letting the neighborhood kids draw on the walls to help liven it up. It consisted mostly of doors, especially two large sliding wardrobe panels—and you can't hang pictures on doors. Slapping on some bright paint would simply substitute garishness for dullness.

PLYWOOD TILES are glued on a row at a time and held in place during drying by small, countersunk brads. Tiles must be started square, kept tightly butted for a good fit.

Then we hit on the idea of covering the sliding wardrobe doors with striated-plywood tiles. These are easy to put on and provide a handsome design that relieves the monotony of the other areas.

Make them or buy them. You can save money by cutting the tiles yourself out of 4′ by 8′ sheets of 5/16″ Weldtex. But sawing them into accurate, uniform shapes and sanding the edges to a neat bevel take time and work.

You can trade a little more money for the luxury of laziness by using ready-made Striatile*, as I did. These are precut tiles that come with either straight or diagonal striations in a variety of sizes and shapes—4″ by 8″ and 2″ by 12″ rectangles, 4″, 6″ and 8″ squares, 4″, 6″ and 8″ hexagons—at an average cost of about 18 cents a tile.

Choosing a pattern. I decided on the 4″ by 8″ tiles laid in rows, but there's no limit to the designs you can work out. Using square tiles and alternating the direc-

*Woodcraft by Armand, 514 North Lafayette St., Allentown, Pa.

tion of the striations produces a checkerboard pattern. The diagonally striated ones will create a herringbone effect. The hexagons form a novel mosaic.

Doors aren't the only candidates, either. A small number of tiles will do a lot to brighten up a dull bed headboard, a plain desk or even a wastebasket. A few more will dress up the wall over the fireplace. Another trick, if you have a wall with bookshelves or other built-ins on it, is to cover only the areas around them. This will save a lot of tiles yet give the appearance of a paneled wall.

Mounting the tiles. Since I wanted the tiles laid with staggered joints like courses of brick, this called for half tiles at the ends of every other row. To cut them quickly and accurately, I rigged up a shallow, three-sided box just big enough to hold one full tile and sawed down the sides at the middle to provide guide slots. Then all I had to do was drop in a tile, make a couple of passes with the saw, and out came two neat half tiles.

Next I removed the doors and laid them flat. Starting at one end, I spread on a narrow strip of glue and put down a row of tiles, then a second strip of glue and another row of tiles, and so on until the job was complete. Small, countersunk brads hold the tiles in place and are easily concealed by the striations in the wood.

Fitting odd sizes. Patterns that don't come out exactly even at the edges should be centered so that the fractional tiles are the same size on both sides. Starting at the top of a door or wall will also make any odd-size tiles come at the bottom where they'll be less conspicuous.

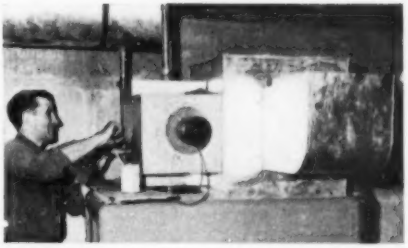
We finished our tiles with two coats of water-white lacquer, which turned them to warm golden color. You could also paint them, but the natural finish is so handsome that I'll bet you won't want to.—*Paul Corey, Sonoma, Calif.*

HALF TILES, needed to fill out ends of staggered pattern, are accurately sawed in shallow, three-sided miter box that holds one full tile and cuts it neatly into two uniform halves. Rough edges are then smoothed with sanding block, stroked gently at first to avoid breaking off the ridges.

Heat Ducts Are Flexible

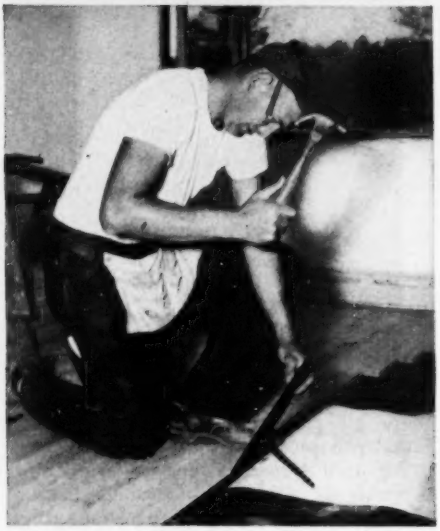
GLASS-FIBER ducts make it easy to install modern warm-air heating in older homes. Only two small wall openings are needed—one at the baseboard level and the other 6′ above. The flexible tube is fed collapsed into the upper wall opening until it reaches the bottom opening. Inside the wall, the duct snaps back to shape to fill the stud space. Metal grilles are then placed over the openings. This method eliminates tearing out lath and plaster to install metal ducts. The units are part of a heating system made by Coleman Co., 248 N. St. Francis St., Wichita, Kan.

Water Heated by Hot Air



THE same hot air that heats your home also heats your hot water when this unit is used. A blower moves heated air over a finned copper coil that carries the water. In the summer, a damper stops hot air from moving upstairs. A 40-gallon water-storage tank is recommended for one-family homes. With a larger tank, some of the hot water can be piped to a hot-water radiator in a sun porch or garage. Made by Aqua-Air Corp., Elmont, N.Y., the unit can be mounted on any hot-air furnace.

New Tools

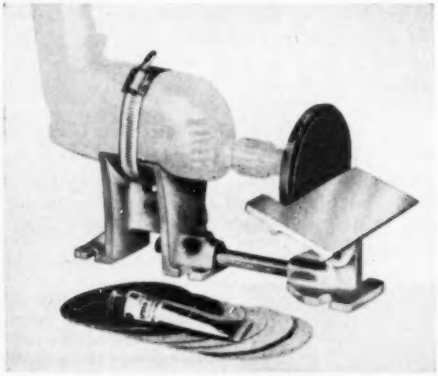


1 Tool Closes Flooring Joints. Drive the toothed end of this tool into the subflooring as above, and it serves as a lever to close a joint in tongue-and-groove flooring. A hinged and pointed arm, trailing after, holds the pressure applied while the loose board is being nailed.

2 Removes Paint from Roller. To aid in cleaning a paint roller, the little scraper above takes off excess paint. Its slightly offset rolled edge will not cut the wool cover of the roller, and keeps the paint from splashing.

3 Parts Rack. Jars for nails, screws and other small parts simply snap in and out of the metal clips on this rack. There are no screw caps to remove. The racks come in two sizes for five- or eight-ounce baby-food jars.

4 Sanding Block Is Rubber. Sheets of 2¾″ by 9″ paper can be inserted individually or in stacks in the all-rubber block above. The block is solvent-resistant so that it can be used for wet sanding. It is designed to fit the hand and is suitable for fine or heavy sanding.

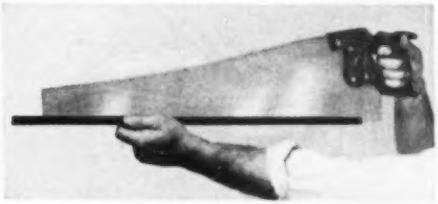


5 Drill Press Has Tilting Table. The sanding table of a new drill stand tilts to 45° and adjusts up or down. The stand, made for a ¼″ drill, frees both of the user's hands for sanding, buffing, grinding or wire brushing. Another model includes only stand and clamp.

6 Finishing Sander. The platen of this sander oscillates 4,250 times a minute. Diameter of the orbit is 3/16″, permitting the tool to be used in any direction on wood without showing swirl marks. The sanding surface—3⅝″ by 9″—extends beyond the body, making sanding in close quarters easier. For convenient operation, the knob handle can be placed on either side or at the front of the machine.

7 Switch Locks Power Tools. With one of these switches on a power tool, no one can use the tool unless he has the key. The danger of children fooling with a tool is removed. When the key is turned left, it lights the lamp; turned right, both lamp and motor operate. Removal of the key locks both lamp and motor. The switch can be used on other equipment such as boats, farm equipment, washing machines.

8 Protects Saw's Cutting Edge. When a saw is not in use, a snug-fitting protector of vinyl plastic will keep its teeth rustfree and sharp. Easy to slip off and replace, it comes in lengths to fit saws of popular standard sizes. The inexpensive guard is said to be unharmed by oil, gasoline or sunlight.



9 Sharpens Hollow Chisels. This sharpener is chucked in a brace and the mortising chisel to be sharpened is locked in a vise. A few turns of the brace and the high-speed-steel sharpener puts a keen edge on the chisel. A file is used to remove burrs and finish the corners.

10 Circular-Saw Sharpener. Calibrations on the guide arm and file holder make it easy to sharpen circular blades with a new tool. The correct angle and rake are set by adjusting the guides. The tool clamps to a workbench. A triangular file and four mandrels are included.

Further information on these tools may be obtained from: 1. Consolidated Products, Winsted, Conn.; 2. Brush Save, Inc., 5049 W. Loomis Rd., Milwaukee 15; 3. Ful-Vu, Box 3513, Merchandise Mart, Chicago 54; 4. Behr-Manning Corp., Troy, N. Y.; 5. Arrow Metal Products Co., 140 W. Broadway, NYC 13; 6. The Black & Decker Mfg. Co., Towson 4, Md.; 7. Irving S. Miller, 3012 Wallace Ave., NYC 67; 8. The Dyer Products Co., 2nd St. S. W., Canton 2, Ohio; 9. Woodworkers' Tool Works, 222 S. Jefferson St., Chicago 6; 10. Speed Corp., 512 N. E. 73rd Ave., Portland, Ore.

WHAT'S WRONG ?

Check Your Soldering Know-How

SOFT solder has a thousand uses, but sometimes a job is unusually difficult to do or disappointing when finished. Failure to clean the metal thoroughly, removing dirt and oxide film, is the most common mistake and can result in a botched joint. The drawings above show nine other errors, and if you can spot them all, you're probably a first-class soldering mechanic yourself.

ANSWERS

1. The finished joint will fall apart as heat is conducted to it from the second one. Either clamp the first or wrap it with a wet rag.

2. Held with pliers, the work may move during cooling, crystallizing the solder and making a weak joint. Clamp or wire the parts together.

3. The tip should be filed the full length of the bevel. As shown, it can be tinned only at the point and will be useless except for very small work.

4. A loosely twisted joint like this depends upon the solder for strength. A good splice is so tightly twisted that it will be strong without solder.

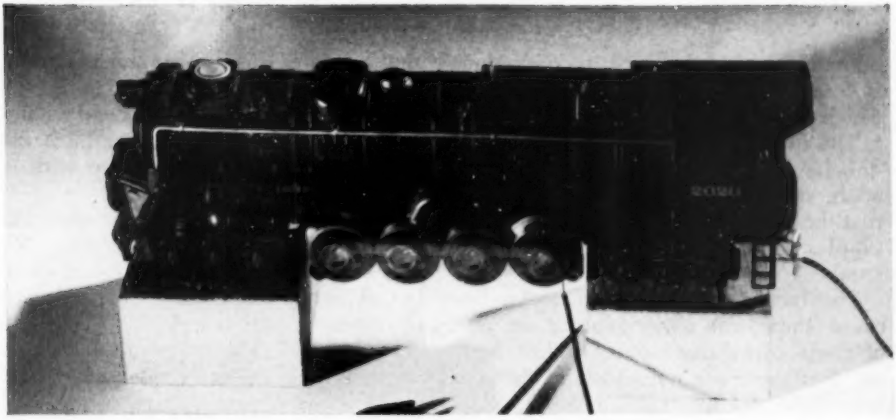
5. Acid flux should not be used for doing electrical work, as it corrodes joints unless it is washed off. Rosin is the right flux for such jobs.

6. Fillets make only a tack joint. For maximum strength, tin both surfaces first (coat with a thin film of solder). Then sweat them together by heating while the tinned surfaces are held together.

7. The soldering iron shown is hopelessly small for the job. Heat will be conducted so rapidly that there will not be enough to melt the solder freely and bond it to the metal.

8. A mere bead of solder will give way. But a split sleeve, tinned inside and sweat-soldered across the break, will probably make the lamp standard as strong as new.

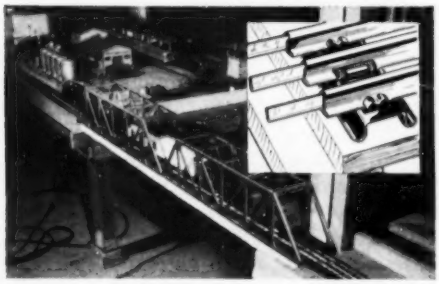
9. Solder will not hold on such stressed joints. The spindle will break again at the first turn. A new one is the answer.



4 Hints for Model Railroaders

Opening Up Clogged Smoke Unit. Running light, a locomotive's smoke unit often does not get hot enough to keep the smoke chemical fluid. This causes it to crystallize around the tiny vent hole over the puffing piston, eventually clogging it.

The remedy is to apply full voltage to the loco while it stands in the neutral position to "cook" the smoke material into a completely fluid state. Then flip the lever and run the loco at high speed to blow out the vent hole. The bench setup (above) is a good way of doing the job. Hook up one transformer wire to the current collector, the other to the frame.



Lift-Out Bridge Clears Busy Path. The route to the washing machine must never be obstructed—not even by a railroad. A pair of truss bridges screwed end to end on a straight piece of shelving board make one long bridge that can be quickly lifted out of the way when the evening's operation is over. Strips of thin brass or pieces broken from a razor blade are forced into the track sections adjacent to the bridge and soldered in place. The bridge track is forced down on these projecting strips to complete the circuit. This eliminates forcing whole sections of track back to insert track pins. A small wood block screwed to the table ends will support the bridge.

Candy-Box Separators Make Roofing. Embossed-cardboard separators found between layers of chocolates make ideal roofs for water towers, sheds and stations. They are usually dark brown and need no paint.

Streamliners Use 027 Switches. You can use 027 tinplate switches in an O-gauge layout if you cut away part of the plastic solenoid housing to clear the overhang of longer cars. The opening that is left after cutting away the housing can be covered with small pieces of thin black fiber. Altered in this way, the switches will accommodate O-gauge Diesels and long streamlined scale-type passenger cars.

New Harpoon Electrocutes Whale

[Continued from page 150]

hours on the factory ships, averaging only four hours' sleep a day for a season which lasts two months or more.

The quarters on the catcher boats are unbelievably cramped. The men can't wash, don't undress, and it is so cold that the brain works slower in getting the simplest kind of messages through to the hands.

The factory ship carries a doctor because there are many injuries on one of these expeditions—cuts, broken legs, etc. But there are no colds and there is very little sickness until a supply ship comes down from Europe. The air is free of bacteria until then—when an epidemic of colds is spread by the supply ship's crew.

Radio Keeps Ships in Touch

Although there are many ships in the armada, they spread out and see nothing of each other for days at a time. They keep in touch by radio. All are equipped, too, with radar as a safeguard against icebergs.

When a whale is killed, pulled alongside the catcher boat, blown up with air to keep it afloat, and flagged with the company flag, the catcher boat rings up the factory ship to report its exact position. A buoy boat, which may be 50 miles away, is then sent to tow the whale to the factory ship.

The factory ship has a big square hole in the stern with a sloping slipway—like a tank landing craft. A pair of huge iron tongs drop over and grip the whale's tail. Then a winch pulls it up the slipway to the flensing (cutting) deck. The blubber is cut off and dropped through huge holes in the deck to the cookers.

Men Must Learn to Stand Stench

The whale is next pulled forward to another deck, where the meat is cut off and sent to the freezer ship. Then the liver, which may weigh much more than a ton and is very rich in vitamin A, comes out.

The stench of dead whale is so strong that a factory ship can be picked out in a fog from three miles away. The odor is even worse when one of the dead whales, used as a fender between it and a 20,000 ton fuel-supply ship, blows up with its own gas and bursts.

But the men get used to all this, and they are paid by a bonus system. Not only the gunners and their picked crews but everyone, including the doctor and the firemen, can double his pay if the catch is good. The lowest-grade laborer on an expedition can earn up to $1,400 in six months—probably twice what he would earn in England or Norway.

Hunting Season Is Limited Now

Whaling has always been profitable. But the old-time whalers, in the days when there was no control, overdid it. They fished out the arctic. Now, to make sure that the same fate does not befall the antarctic, the season and the catch is controlled by the International Whaling Commission.

Each factory ship carries an inspector to make sure the fleet does not break international regulations. Sandefjord, in Norway, is the control point. It receives a radio report on the day's catch from each whaling fleet. When the season's allotted catch has been about reached, Sandefjord radios the season's closing date.

This year the whaling season is expected to last only 75 days. Then the ships will steam north. In the future they may leave the bleak immensity of the antarctic even sooner, thanks to the adoption of electric harpoons. END

Gone for Lunch

THE boys at the roundhouse observed that one of the crew was unusually glum, and asked what was bothering him.

"I think my wife is tired of me," he replied.

"What makes you think so?" inquired a marital-wise friend.

"Every day this week," he answered, "she has wrapped my lunch in a road map."—*Fireman's Fund Record*

RACING'S TOP POWER PLANT!

THE 270 OFFENHAUSER

TREND, INC.—PHOTO

"I build racing's top engine. Here's why I recommend Champion spark plugs for your car." Louis Meyer

Louis Meyer, three-time winner of the Indianapolis 500, three-time national AAA racing champion, today builds America's foremost racing engine—the Offenhauser, product of the Meyer-Drake Engineering Company. Its success in competition is without parallel in automobile racing.

Says Meyer, "We specify Champion Spark Plugs as standard equipment for the Offenhauser because we've never found any spark plug that can equal Champion in that extra notch of power and speed and extra dependability which you must have for championship performance. Speaking from broad experience in this field, we know that all Champion Spark Plugs are built to *one, single* exacting standard—the best that top research, engineering and manufacturing can produce.

"Therefore, I say to every motorist, 'If you value the very best performance of which your car is capable, you'd better specify Champions for your car. In my book they're tops for every engine, and the record books prove it'."

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

FOLLOW THE EXPERTS Demand **CHAMPIONS** FOR YOUR CAR!

Adventure in Color Pictures

The world of miniature color photography is exciting . . . rewarding. Here you can pick a "team of two" to help you discover it.

THERE'S nothing more satisfying than "shooting it in color" on Kodachrome Film, then staging grand color shows. On these pages you see expert Kodak miniature cameras for taking color shots . . . projectors and viewers for showing big images of the beautiful color slides you get. Let your Kodak dealer help you select a camera-and-projector "team" to fit your budget. Ask, too, about full-color prints and enlargements from your slides.

• • •

Latest in home projection is the brilliant new Kodaslide Highlux III Projector, shown above. Its 300-watt lamp, combined with a specially designed optical system including Kodak Projection Ektanon Lens, 5-inch *f*/3.5, gives top brilliance plus unsurpassed color purity and over-all definition. Three-way slide cooling—by baffles, a fan, and heat-absorbing glass. $56.50 (including carry case with built-in fan).

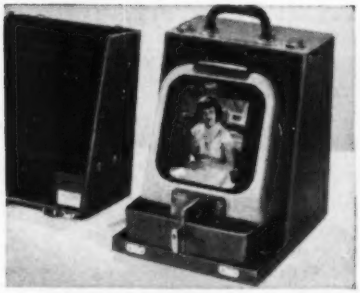
New economy 35mm. camera — The new Kodak Retinette Camera is a miniature beauty. Slips into small coat pocket. Fine three-element *f*/4.5 lens assures sparkling color slides. Has automatic film stop, counter, double-exposure prevention. 8 speeds to 1/300 . . . and a delayed-action setting. Built-in flash "synch." Only $59.50.

New model of famous Retina Camera—The new Kodak Retina IIa Camera with Schneider Retina-Xenon *f*/2 Lens and Synchro-Compur Shutter, 1 second to 1/500, is designed for action work in color. Single window for range finder and view finder; rapid lever-action film wind; automatic film stop; double-exposure prevention. $164.10.

Moderate-price range-finder "miniature"—The new Kodak Signet 35 Camera features Kodak's finest lens—Ektar *f*/3.5—for extra color brilliance. Speeds to 1/300. Built-in range finder, flash "synch." Exclusive ball-bearing action for ultra-smooth focusing; automatic exposure counter; film stop; double-exposure prevention. $92.50.

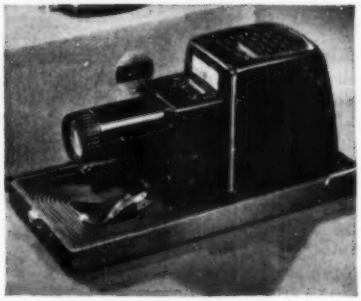
Kodak Pony 828 Camera (left)—Inexpensive color camera with color-corrected Kodak Anaston *f*/4.5 Lens; Kodak Flash 200 Shutter. Takes 8-exposure black-and-white, Kodachrome, and Kodacolor Film. Only $31.15.

Kodak Pony 135 Camera (right)—Makes superb color slides on Kodachrome Film. Has automatic film stop and exposure counter. Uses all Kodak 135 Films, 20 or 36 exposures. A good buy at $35.75.



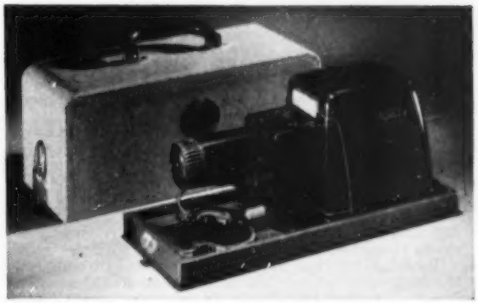
Kodaslide Table Viewer, Model A (left)—Projector, screen, and slide changer in a single unit. Projects brilliant images in lighted room. Takes 75 cardboard or 30 glass slides. Images appear as push-pull plunger positions slides. $97.50.

Kodaslide Table Viewer, 4X (right)—This budget-priced viewer enlarges slides four times on its built-in screen. Showings are effortless. $49.50.



Kodaslide Merit Projector (left)—Features improved slide-feeding mechanism on top of projector, eliminating danger of jarring instrument. Includes Kodak Projection Ektanon Lens, 5-inch *f*/3.5. $26.10.

Kodaslide Projector, Master Model (right)—Fast lenses, 1000-watt lamp can deliver more light to screen than any other 2 x 2-inch slide projector. Choice of 4 lenses. From $169.00.



New Kodaslide Highlux II Projector (right)—This highly capable 200-watt projector is a companion product to the Highlux III. Features include Kodak Projection Ektanon Lens, 5-inch *f*/3.5; heat-absorbing glass for slide protection; two Lumenized condensers for uniform light distribution over the picture area. If, later, you wish to convert to 300-watt screenings, you can do so very easily. Simply purchase the Kodaslide Highlux Blower Case for $19.20 and insert a 300-watt lamp (extra). Price of the Highlux II, $36.50.

You can see this equipment, and many other interesting items, at your Kodak dealer's. Stop in any time and ask for a demonstration. His professional knowledge and experience will prove valuable in helping you make a selection that will best suit your needs.

Eastman Kodak Company, Rochester 4, N. Y.

Prices subject to change without notice and include Federal Tax where applicable.

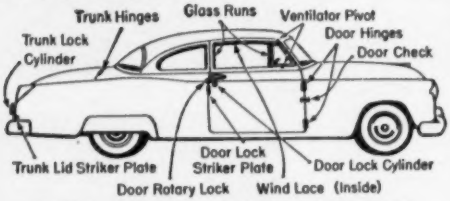
Kodak
TRADE-MARK

Care and Feeding of Engines

BY S. P. CORP

BODIES NEED LUBRICATION, TOO

Body lubrication is necessary if you want a quiet car, because body noises are caused by dry surfaces rubbing together. To do a good job, you will require a can of light engine oil, a stick of lubricant or a grease pencil, and a tube of powdered graphite, all obtainable at any gas station or car dealer.



QUICK GUIDE TO BODY LUBRICATION

1. Refer to the diagram and apply a thin coating of graphite to all glass-run channels, working glass up and down until graphite is worked in. Insert end of graphite tube into key opening of door locks, squeezing tube to force graphite into working parts; also the trunk lock.

2. Use grease pencil to apply a thin coating on door lock striker plate and trunk lid striker plate. Open doors and apply grease pencil to each weather cord, the cloth covered tube around each opening, wherever it contacts the door. Friction between weather cord and door often causes door squeaks.

OIL HINGES AND FRONT SEAT TRACKS

3. Apply light oil to all door and trunk hinges, door checks, door rotary lock, and pivots on door and window ventilators.

4. Front seats are usually on tracks. A few drops of oil here will make seat move with less effort and more quietly.

5. When windows are hard to operate, remove door or window trim pad and apply grease to window regulators, using your grease pencil.

6. Part of your body lubrication job should be a careful check to see that drain holes in the bottom of each door are open, so that rain running down the windows can find its way out. Clogged drain holes can cause doors to rust out from the inside.

By following these simple instructions, you can keep the body of your car as quiet as when it was new.

WRITE FOR FREE BOOKLET

This new booklet, "MORE POWER, Less Gas, Less Oil," tells many facts about car care, and about new Sealed Power KromeX Ring Sets, engineered to fight heat, friction, abrasion, and corrosion in late-model cars and trucks. A postal card to Sealed Power, Dept. H-1, Muskegon, Mich., will bring your free copy. It can save you real money.

Industry Clamors for Trained Men

[*Continued from page 141*]

were GIs with only middling high-school records who did fine work in college after the war. One submarine sailor finished high-school studies by mail between watches at sea, took college-entrance exams when he got out, and went through college with honor grades.

CIVIL ENGINEER. John H. Schmertmann, 23-year-old soil-engineering specialist, paid for almost all his professional education by part-time and summer jobs, loans and scholarships. In four years at MIT he received $1,200 in scholarships—$200 from the Scarsdale (N.Y.) Lions Club, the balance from Tech itself. He borrowed $300 more from the Lions and $1,800 from MIT, which he is now repaying at $100 a year. Summer work—gardening and surveying—brought in $1,850. Work in the Tech library and soil lab—seven to 10 hours a week for four years—paid him $600 more. Another $700 he had saved by working during high school. A $125-a-month research assistantship paid for a year of graduate study at Northwestern—and let him run a car. Schmertmann, shown above using a consolidometer to test soil samples from a factory site, is now with Moran, Proctor, Mueser and Rutledge, New York consulting foundation engineers.

For some, a hitch in the service means a chance to pick up new skills. Alphonse Peter, doing advanced work on jet propulsion at Caltech this year, was an electronics technician in the Navy. He told me that he felt that two years of travel and living away from home gave him an edge on his University of Connecticut

[*Continued on page 250*]

MOST USEFUL TOOL FOR YOUR SHOP

Cleaning . . .

Buffing . . .

mortising . . .

shaping . . .

sanding . . .

Atlas 15" DRILL PRESS

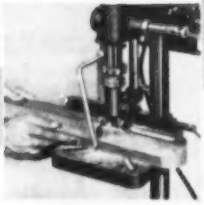
You get yourself a whole "shopful" of tools when you install an Atlas 15" drill and accessories. The photos just begin to show its usefulness and hint at the money you can save—while having fun—fixing and making things for your home.

And the Atlas is built to last you a lifetime—with exclusive "floating-drive," six-splined spindle, steel drive sleeve, 4 sealed-for-life ball bearings, new exclusive depth control stop, extra-heavy head, table, column, and base for accurate work.

It gives you 41" work capacity over the precision-ground table, 46" over base. You'll probably want the high speed model with 4 speeds, from 580 to 5200 RPM, for work on woods and plastics as well as metals. Send the coupon or a postcard today for latest catalog.

Mixing . . .

Polishing . . .


and carving.

FREE CATALOG WRITE TODAY

ATLAS PRESS COMPANY
125 N. Pitcher St., Kalamazoo, Mich.

☐ Please send free woodworking tool catalog.
☐ Enclosed is .... for .... 20 Plan Books.

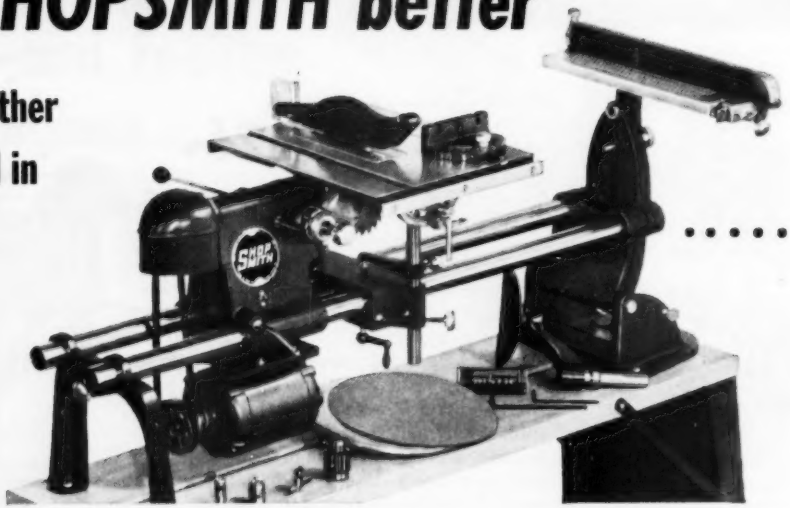
Name _____
Address _____
City, State _____

20 PRACTICAL PLANS

Finest plan book you've ever seen! New authentic designs by noted furniture designers with easily followed instructions. Also includes drawer construction, standard joints, gluing and finishing hints. Price $.50, postpaid, $.65 outside U.S.A.

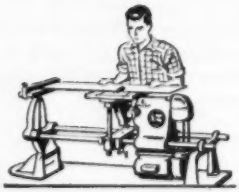
Experts (like you)...*beginners, too*...
like SHOPSMITH better

than any other power tool in America!



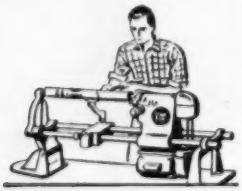
A COMPLETE Workshop!

Five superior tools in the space of one!

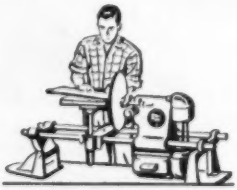


CIRCULAR SAW cross-cuts, rips, bevels or miters. Maximum depth of cut, 2¼". Depth regulated by built-in micro table-raising mechanism. Up to 48" between blade and fence!

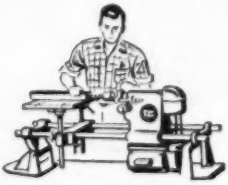
DRILL PRESS drills, routs, reams, mortises, countersinks wood, metal, plastic. Up to 27" between table and chuck. Saw fence miter gauge and tilting table provide automatic settings without special jigs.



LATHE turns wood, plastics. Extra capacity—15" swing, 33" between centers. Tool rest slides parallel to work; is quickly adjusted, locked into position for any operation, including faceplate turning.



DISC SANDER is a precision tool you'll use often. No "chatter" when beveling thin pieces. Plain and compound miter sanding. 12" sanding disc is dynamically balanced ... installed instantly.



HORIZONTAL DRILL PRESS is ideal for pieces too big or awkward for vertical drill press. Length of work limited only by size of room. It's the *only* professional doweling tool available for the home workshop.

Complete 5-tool unit

only $189.50

Motor* and bench extra

* Special SHOPSMITH motor; heavy-duty, ½-hp., ball-bearing, capacitor, 110 V, 60 cycles—**$34.50.**

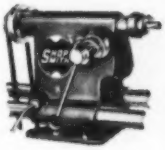
SHOPSMITH is America's largest selling power tool because it's a real *multi-purpose* tool that actually outperforms most saws, sanders, drills and lathes.

It offers hairline accuracy, tremendous capacity, important savings in money and space, and many quality features formerly found only in the most expensive professional tools. SHOPSMITH versatility means you have the proper tool, simplified adjustments and ready-made jigs for difficult or unusual operations, and to change from one tool to another takes less than 60 seconds.

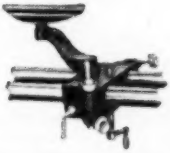
SHOPSMITH is *not* a makeshift one-bench assortment of individual tools never designed to work together. It was designed from the beginning as a multi-purpose tool, and is time-tested, rugged, practical and completely flexible. Yet its cost fits the most modest budgets. Fill out and mail the coupon today for SHOPSMITH'S colorful 16-page booklet. It's free!

SHOP SMITH®

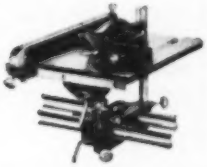
Compare SHOPSMITH quality with any other power tool!



BALL-BEARING CONSTRUCTION. Spindle floats on *four* grease-sealed ball bearings. Spindle tip is induction-hardened, has reverse-tapered safety flat.



MACHINE-TOOL PRECISION. All moving parts are machined to precision tolerances. Headstock and carriage slide effortlessly on the ways.



HEAVY-DUTY CASTINGS. No stamped metal parts. Castings are fine-grain grey iron or rigidly ribbed, top-grade aluminum alloy.

EXCEPTIONAL QUALITY THROUGHOUT. Because they are used for all major operations, parts are made with special care from top-grade materials.

FREE SHOPSMITH BOOKLET!

Gives complete details. 16 illustrated pages. Send coupon for your free copy.

MAGNA ENGINEERING CORP.
Dept. 102-A ***at factory nearest you:***
12819 Coit Rd., Cleveland 8, Ohio, OR
Menlo Park, California

Please send me my free copy of the SHOPSMITH catalog and the name of my nearest dealer.

Name _____

Address _____

City _____ *State* _____

Industry Clamors for Trained Men

[*Continued from page 246*]

classmates: he knew what he wanted in college and his experience in electronics helped. He advises service before college. "A two-year hitch is about right."

Of course West Point and Annapolis provide a free engineering education, and take both enlisted men and boys straight from high school. The smaller Coast Guard Academy offers an excellent course in "general engineering." Its cadets are selected strictly by competition.

Join the Navy and Get an Education

The Navy offers another opportunity—the Holloway Plan, open to both Navy enlisted men and to boys graduating from high school. If selected, you can choose any college that has a naval ROTC unit. The Navy pays your tuition and fees for the four-year course, plus an allowance of $50 a month. This will just about cover board and room in most places. In return, you take certain courses required by the Navy and spend your summers on training cruises. You also agree to serve three years on active duty after college, plus eight in the reserve.

The colleges save jobs for students who need the money. They also hold down a man's work week so that his studies won't suffer and he has a little time for fun. MIT and Caltech, for instance, advise students to limit outside work to 10 or 12 hours a week. Carnegie Tech puts the outside limit at 15 hours. This means that a student can make about $300 or $400 during a college year. But at other places students work as much as 30 hours a week—and still keep up their studies. This doesn't leave much time for football, beer and dates.

Full-time summer work can be an important part of a man's education—and bring in $300 or $400 more besides. An engineering student can pick a plant in

[*Continued on page 252*]

UNCLE WALTER

IT SMELLS GRAND

AROMA PROMISING SWEET RELEASE

IT PACKS RIGHT

CUT TO PACK
SO JOYS INCREASE

IT SMOKES SWEET

MAKES EVERY PIPE
A PIPE OF PEACE!

IT CAN'T BITE!

SIR WALTER RALEIGH'S BLEND OF CHOICE KENTUCKY BURLEYS IS EXTRA-AGED TO GUARD AGAINST TONGUE BITE. STAYS LIT TO THE LAST PUFF. AND NEVER LEAVES A SOGGY HEEL IN YOUR PIPE.

It costs no more to get the best!

• SHOP by MAIL & PAY LESS at GROBAN'S •

ITEM #350

LOGAN AIR CYLINDER Item #350 — Double acting pneumatic cylinder, 6" bore, 6" stroke, 1½" shaft. Adjustable cushions at both ends. Flange mounting at shaft end. Overall length closed 18". Ideal for use in 125 PSI systems. Shipping weight 40 lbs. F.O.B. Chicago.... **39.50**

HEAVY DUTY HYDRAULIC and AIR EQUIPMENT

Large supply of new labor-saving, economical hydraulic equipment in many types and sizes. Use these positive, highly efficient smooth pressure hydraulics on presses, arbors, lifts, loaders, power control, positioning, brakes, plastic dies, auto frame alignment, etc.

ALL ITEMS UNCONDITIONALLY GUARANTEED

Item #29K — Gear Type Hydraulic Pump. Ideal in industrial applications and for operating all hydraulically powered farm implements including loaders, stackers, swathers, plows, etc. Delivers 1000 PSI (may be set at lower PSI if desired), 12 GPM at 400 RPM. Maximum operating speed 800 RPM—rotation counter clockwise. Has built-in relief valve, permanent or torque bar mounting, 1" diameter shaft, ¾" pipe tap inlet, ½" pipe tap outlet. Ship. wt. 22 lbs. F.O.B. Chicago **45.50**

Item #126—Four-way, open center control valve with built in adjustable relief valve. Factory set at 1000 P.S.I., spring loaded neutral position, for use with one double acting cylinder. In neutral position cylinder is locked and pump unloaded. Fully balanced plunger type, smooth, positive easy operation, can be used as single unit or mounted in series of any combinations desired. Has ¾" pipe thread inlet and outlet, ½" pipe thread cylinder ports. Newly manufactured to our specifications. Shipping weight 11½ lbs. An outstanding buy! F.O.B. Chicago **21.50**

Item #126

ITEM #59

LOGAN 4-Way, Foot Operated AIR VALVE, Item #59, Model 6520—Ideal for operating air vises, presses, air machinery, and other double acting pneumatic devices. Heavy cast construction. Standard ½" pipe thread ports. Overall dimensions 8½"x5¾"x7½". Gov't. Acquisition cost $42.00. Shipping weight 28 lbs. An outstanding buy. F.O.B. Chicago **15.00**

ITEM #1036

Item #42—Double action hydraulic cylinder, 4" bore, 18" stroke. Rated lift capacity with 1000 PSI line pressure is 12,500 lbs. Ship wt. 30 lbs. F.O.B. Chicago. An Excellent Buy for..... **32.50**

Item #16C—Double acting hydraulic cylinder, 1½" bore, 26" stroke. Will lift 1760 lbs. with 1000 PSI line pressure. Weight 8 lbs. A $55.00 value. Now only..... **16.95**

Item #1036—Double acting hydraulic, 3" bore, 36" stroke, ½" pipe thread ports, 1¼" solid steel shaft. Overall length closed 49", clevis mounting at base and shaft. FEATURES • Cup & Chevron Packing • All Welded Construction • Precision Ground and Honed Construction • ½" Seamless Steel Tubing Cylinder Case. Weight (net) 57½ lbs. F.O.B. Chicago **50.00**

PUMP PRESSURE (PSI)	LIFT CAPACITY (LBS.)
500	3535
1000	7069
1500	10604
2000	14138

WAR SURPLUS GENERATING PLANTS

BE PREPARED — IMMEDIATE DELIVERY

Available for Immediate Delivery • Large Stock • Many Sizes from 350 Watts to 25 KVA

ITEM #183

Item #183—3000 to 4000 WATT GENERATOR SET — FEATURES — Power for your home or business. Simply connect to power panel or house circuit. • Constant voltage regardless of load. • Push button start or stop. • Easily made full automatic start or stop. **SPECIFICATIONS**—Sizes 19"x30"x48". Steel skids, weatherproof housing, requires no building. Wt. 725 lbs. • Hercules 4-cyl. 10 HP gasoline engine. Load governor. Oil filter. Quiet muffler, 6-volt starter, generator. Herbart 115 volt, 60 cycle, 3000 to 4000-watt generator. Furnishes either single or three-phase power, 2 or 3 wire. • Panel contains oil gauge, voltmeter, ammeter, circuit breaker, voltage regulator, start button. Today's cost over $1200.00. SALE PRICE, F.O.B. Chicago **465.00**

Item #201—PE 95-G—10 KW—110/220 Volt 60 Cycle A.C.—Single Phase. Totally enclosed. Onan generator direct couples to Willys Jeep, 4 cylinder, water cooled engine, push button start. Instrument panel with engine and generator instruments, circuit breaker, controls, etc. Uses 6 volt car battery. (Batteries not incl.) Skid mounted. Ship. wt. 1500 lbs. F.O.B. Chicago **1295.00**

Item #300—Model C1B—3 KW—110 Volts D.C. This nightly mite develops 3KW—28.5 amps. D.C. Standard Delco generator direct coupled to a Model ZZP Briggs and Stratton 1 cylinder, 5.7 HP, air cooled, rope starting gas engine. Instruments include voltage control rheostat & voltmeter. Wt. 275 lbs. F.O.B. Chicago **295.00**

TINY TIM BATTERY CHARGER

ITEM #301

Model 125 to charge 6 and 12 volt batteries—12 volts—300 Watts; Heavy Duty Generator; Push button self-starter; 2 qt. gasoline tank in base; Ammeter; Generator cut-out; Concealed coil, etc.; Speed and charging rate control; Attractive orange finish; Weight 93 lbs.; Length, 15½"; width, 11¾"; Height, 14¾". F.O.B. Chicago... **89.00**

NEW GROBAN MANUFACTURE

Model 251

Item #2510

2500 watts, 115 volts, 60 cycles, single phase, A.C. electric generating plant, powered by dependable 6.5 H.P. Wisconsin engine—Two pole ball bearing belt driven high efficiency generator with heavy duty windings for high torque motor starting loads. Rated 3000 watts for intermittent service. Light weight portable rugged unit, easily transported to job site. Consumes 3 quarts of gas per hour at rated load. Dimensions: 24"x29"x24", ship. wt. 230 lbs. Complete with fused outlet box and voltmeter. F.O.B. Chicago **349.00**

General Motors—Allison

CENTRIFUGAL PUMP

200 GALLONS PER MINUTE

Brand New

(ITEM #130)

For Draining Basements • Fire Fighting • Irrigation • Fuel Transfer • Swimming Pools • Home Water Systems • Dewatering

Converted for high volume commercial, home, and industrial use. Standard 2½" pipe thread inlet, twin 1¼" pipe thread outlets. Ball bearing supported ¾" shaft. Easy priming. Rotation, counter-clockwise facing shaft. Gov't. acq. cost $145.00. Complete with full instructions. Ship. wt. 35 lbs. F.O.B. Chicago **39.50**

TYPICAL PERFORMANCE DATA

Suction Lift	Head Pressure	Gal. Per Min.	H.P.	R.P.M.
10'	75'	260	6.0	3500
10'	65'	200	5.2	3500
10'	80'	40	1.5	2500
10'	50'	140	5.0	3500
10'	30'	100	3.0	2500

FREE 1953 CATALOG, 48 Pages, chuck-full of unsurpassed war Surplus Equipment Bargains for farm, home, factory and workshop. Every item is unconditionally guaranteed. You save on everything! Write today.

HYDRAULIC SPEED REDUCER

ITEM #115 WITH FINGERTIP CONTROL

USE FOR: • Reamer Drives • Midget Cars • Feed Mills • Canning Machines • Conveyors • Lathes • Milling Machines • MotorBoats • Cream Separators • Garden Tractors • Pumps

Variable output speeds from 0 to input speed available by moving control handle. Locking handle maintains setting. Use input power of ½ to 1½ H.P. This Westinghouse-Oil Gear Unit consists of a variable displacement hydraulic pump feeding a fixed displacement hydraulic motor. Adjustable relief valves set at factory for 100 inch pounds of torque may be reset up to 180 inch pounds. Independent reverse control allows full output power and speed selection in either direction of rotation. Shafts measure ⅝" diam., include keyway. Input rotation is counter-clockwise facing shaft. Recommended input speed not to exceed 750 R.P.M. Over-all dimensions, 7½"x7½"x11½". Gov't acquisition cost, $428.00. Ship. wt. 31 lbs. Complete with 2 ozs. of oil and full instructions. F.O.B. Chicago **54.50**

NEW MODEL 353 — DUAL RANGE

ARC WELDER

for Stationary or Portable Use

Heavy Duty Range To 250 AMPS.

New 'Magic Terminal' For Low Current 30 to 100 Amps

Welds Anything From Auto Fenders To Tractor Frames

IDEAL FOR • FARM • GARAGE • FACTORY • WORKSHOP. These precision engineered D. C. Arc Welders contain the highest quality War Surplus aircraft components built to exacting government specifications. They are light in weight, have oversized lifetime grease-sealed ball bearings, air cooled commutator, flat type rheostat for easy pin-point control, a sign-low rheostat switch, reactor coil for even arc, and the new 'MAGIC TERMINAL' low current welding range for welding lighter materials. Designed for many years of trouble-free service. Run welder from drive pulley or power take off of a tractor or Jeep, 7½ HP electric motor or 10 HP gas engine at 2500 R.P.M. Uses two V belts or flat belt. Continuous output rating 200 amps. Intermittent welding rating 250 amps. 30 volts. This sensational price includes double V or flat belt pulley and complete operating instructions. Ship. Wt. 107 lbs. $350.00 Value. Item #65. Now only.. **119.50** F.O.B. Chicago

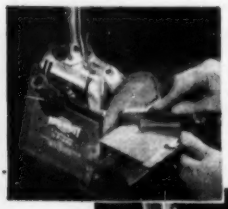
ORDER DIRECT FROM AD — SEND PAYMENT OR PURCHASE ORDER TODAY — SATISFACTION GUARANTEED

GROBAN SUPPLY CO. 1139 SO. WABASH AVE., CHICAGO 5, ILL. DEPT. PS-1

Take advantage of your Black & Decker Tool's amazing versatility!

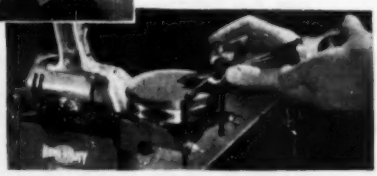
buy B&D Utility *accessories*

RECEIVE a Black & Decker Utility Drill or Sander-Polisher for Christmas? Pleased as punch with the way it helps you build and repair things? Then you're in for more good news when you discover how many more times useful you can make it by buying Utility accessories! There's a whole raft of them to choose from—for everything from sharpening knives and making picture frames to polishing your car and shining up pots and pans. Try them at your hardware, appliance or department store!



Disc Sanding Table only $7.75

Ideal for rapid, accurate sanding of picture molding, plastics and hobby parts. Easily handles small, odd-shaped, curved pieces.



Roto-Hone Attachment only $10.95

Hones knives, chisels, plane bits, lathe tools to razor edge. Clamp and guide bar for accurate angle. Stone has rough and fine sides.

PLUS stands, auger bits, masonry bits, countersinks, wire wheel and cup brushes, sanding discs, lambswool bonnets, auto polish, electric wax, saw blades, protractors, etc. WRITE TODAY for free book of job tips to: THE BLACK & DECKER MFG. CO., Dept. H1S, Towson 4, Md.

Black & Decker

UTILITY TOOLS

PORTABLE ELECTRIC TOOLS

Industry Clamors for Trained Men

[*Continued from page 250*]

his field, see the industry from the inside. Sometimes summer work fits right into the next year's classes. Frederick Harshbarger, who graduated in physics from Oberlin last year, worked one summer for Preco, Inc., a small company in Los Angeles. As an inspector, he noticed that plant morale was good. He dug into why this was true, wrote up his findings at college. His essay won a $50 prize.

Investing Money in Men

The college deans who try to keep men from loading up on outside work know that you can't pay your whole way through college on 10 hours of work a week. They also know that for most men a college education means increased earning power. In that case, a good student is a good financial risk. Corporations borrow money to buy new machinery to increase production—why shouldn't a man do the same? A pioneer, MIT has been making long-term loans to students for 22 years. More than $2,500,000 has been borrowed in that time by 3,600 men. About two-thirds of this has already been paid back and the younger men are sending in checks regularly. Harvard, Yale and Princeton, among others, are making more and more student loans. With a combination of scholarship, part-time work and loans, a man can make his way through almost any college or engineering school.

And by picking his college right, a man can do it on work alone. I know of a recent graduate of Ohio State who paid all his expenses after the first year by working 25 to 30 hours a week as a machine operator—later timekeeper—on a part-time shift in a local factory. He got married his junior year—and helped put his wife through school. END

Off His Game

Golfer (dubbing a shot): "I'm certainly not playing the game I usually play."
Caddie: "What game is that, sir?"—*Pure Oil News.*

SURPLUS MACHINE SHOP TOOLS AT PRICES YOU CAN AFFORD

HIGH SPEED STRAIGHT SHANK DRILLS

SET 9J 30 selected H. S. Straight Shank Drills from 1/8" to 1/2", lengths up to 6". $15 value, only **$2.98**

SET 19J 100 HIGH SPEED DRILLS: 1/4" down. new std. H. S. Drills — 70 slightly used short drills, lengths up to 6". $30 value. PPD. Only **$7.98**

SET 7J 12 Different size H. S. Straight Shank Drills, 1/4" to 1/2", lengths up to 7". Only **$3.98**

HIGH SPEED DRILLS

1/4" TO 17/32" WITH 1/4" SHANKS

SET 35J 6 different size H. S. Drills, 1/4" to 17/32" all with 1/4" shanks. PPD. **$2.98**

SET 36J 10 of above. PPD. **$4.15**

Sets 35J and 36J will fit any 1/4" drill.

HIGH SPEED DRILLS

1/2" to 1-3/16" WITH 1/2" SHANKS!

5 Drills for less than the price of one new Drill!

SET 32J 5 different size H. S. Drills 1/2" to 1-3/16" **$7.95**

SET 33J 10 different size H. S. Drills 1/2" to 1-3/16" **$14.50**

These new and used H. S. precision Drills with 1/2" shanks can be used in a 1/2" elec. drill or a 1/2" capacity lathe or drill press.

HIGH SPEED MORSE TAPER SHANK DRILLS

SET 9J 15 Different Size High Speed Morse Taper Shank Drills up to 9/16" with No. 1 and 2 tapers. New and used. $50 value. Priced at only **$6.49**

SET 10J 20 Different Size High Speed Morse Taper Shank Drills from 1/2" to 1". New and used. $70 value. Priced at only **$12.95**

SET 15J 10 Different Size High Speed Morse Taper Shank Drills from 1/2" to 1". New and used. $50 value. Priced at only **$9.95**

SET 37J 8 Different Size High Speed Morse Taper Shank Drills from 1" to 2" with No. 3, 4, and 5 tapers. New and used. $125 value. Priced only **$29.95**

NEW MOUNTED STONES

SET 27J 12 Mounted Stones Mixture of with 1/4" shanks. PPD. **$2.95**

HIGH SPEED WOODRUFF KEY SEAT CUTTER

SET 4J 5 different size cutters. Can be used as mounted milling cutter or circular saw. All with 3/8" and 1/2" shanks, widths up to 1/4", dia. up to 1". New and used. Ppd. Priced at only **$3.95**

NEW ROTARY FILE MIX

7 different pcs., High Speed 1/4" shank, PPD. **$4.49**

SET 22J 14 different pcs. as above. PPD. **$8.79**

H. S. TAPER SHANK CHUCKING REAMERS

SET 25J 15 Different Size High Speed Morse Taper Shank Chucking Reamers up to 1/2" with No. 1 and 2 tapers. New and used. Priced at only **$7.95**

SET 13J 8 Different Size High Speed Morse Taper Shank Chucking Reamers from 1/4" to 1". New and used. Priced at only **$6.95**

DOUBLE-END END MILLS

SET 29J 4 right hand H. S., 3/8" straight shank End Mills up to 3/8" dia. **$3.98**

6 SLITTING SAWS WITH MANDREL

SET 6 Different Size High 34J Speed Slitting Saws, 5 pcs. 2 3/4" dia. x 1" arbor, plus 1 pc. 5" dia. x 1/2" arbor. Thickness from .040 to .071. Cuts wood, aluminum, brass, steel, etc. PLUS SPECIAL MANDREL which enables use of saws in 1/4" or 1/2" elec. drill. $25 value. PPD. Only **$4.95**

7 selected, sharp H. S. Slitting saws as above to use on your own mandrel or milling machine. New and used. PPD. A bargain at **$4.95**

NEW HIGH SPEED COMBINATION DRILL AND COUNTERSINKS

SET 2J 8 selected sizes from #1 to #2 (3/64" drill x 1/8" body to 3/16" drill x 7/16" body) 60° angle of countersink. New cost on these countersinks 75c to $2.50 ea. Priced to you Ppd. at only **$3.98**

New Carbide Tip Masonry Drills

Carbide tip goes through any masonry. Set of 5 bits containing two 7/32" & one 1/4", all five, $15 value, only **$2.75**

NEW 360° SWIVEL TYPE TOOL HOLDER & BORING BAR

This is a tool that will do the work of a right and straight tool holder, plus a boring bar, all for a fraction of its original cost. PPD to you.

- TOOL A takes 5/16" sq. bit or 5/16" dia. boring bar, shank size 9/16"x1"x4 3/4". PPD. Only **$3.29**
- TOOL B takes 3/8" sq. bit or 3/8" dia. boring tool. Shank size 9/16"x1"x4 3/4". PPD. Only **$3.95**
- TOOL C. Cut-off blade holder for 3/32"x 3/4" blade. Shank size 9/16"x1"x4 1/2" (can be changed to fit other cut-off blades). PPD. Only **$2.25**
- TOOL BIT SPECIAL: 12 H. S. 3/16" sq. x 2 1/2" new tool bits. PPD. **$1.95**

AIR TANK—REGULATOR—MASK

- A4 Tank, 5" x 5", 104 cu. in. vol., 2,000 PSI $5.95
- Demand Type Regulator complete with 500 PSI pressure gauge. Fits above tank $3.50
- Mask complete with 14" x 14" head, outlet valve. Fits above regulator $3.50

Above equipment suitable for air, gas compressors, respirators, diving units, etc.

GENERATORS!!

P1 GENERATOR 200-amp. 24 volt, continuous duty. Wt. 46 lbs. Special closeout price. F.O.B. Tulsa **$14.95**

ESA GENERATOR: 50-amp. 12 volt continuous duty. Wt. 21 lbs. F.O.B. Tulsa. Only **$6.95**

These used, guaranteed serviceable aircraft quality generators are easily convertible to welders, power plants, boats, platers, etc.

BARGAIN TOOL & SHOP MIXES—PPD.

- 50 GRINDING WHEELS 1/4" arbor, 4" diameter max. **$3.29**
- 2—8" WIRE WHEELS coarse and fine, 1" thick, 5/8" bore. Pair only **$2.29**
- 300 SPRINGS all types and sizes **$1.79**
- BEARING MIX: About 40 needle, ball and roller bearings; new and used. Up to 2 1/2" dia., approx. 5 lbs. Outstanding buy at **$2.95**
- SURPRISE MIX: Over 50 pcs. for your 1/4" elec. drill including rotary files, drills, bits, reamers, grinding wheels and arbors for our customers who like pleasant surprises. Your money back if you aren't satisfied **$2.98**

NEW VEEDER ROOT COUNTERS

Non-reset, clock-wise rotation type. A counter for gadget experimentation, motor RPM, etc. Available in 3, 4, and 5 digits. Your choice, only **$1.00**

HYDRAULIC BARGAIN DEPT.

New Hydraulic Hose!! 3000# Test

- Any length
- Std. Pipe Connections

1/4", 3/8", and 1/2" ID Available
1/4" hose has 1/4" male pipe connections.
3/8" hose has 3/8" male pipe connections.
1/2" hose has 1/2" male pipe connections.

Length in feet	Price 1/4" ID	Price 3/8" ID	Price 1/2" ID	11 to 50-ft. lengths available at
1	$ .75	$1.50	$1.65	15c per ft.
2	1.00	2.25	2.40	for 1/4" ID
3	1.20	2.75	2.95	Hose—30c
4	1.45	2.95	3.10	per ft. for
5	1.70	3.40	3.60	3/8" ID Hose
6	1.95	3.60	3.75	—40c per
7	2.30	3.75	3.95	ft. for 1/2"
8	2.30	3.75	3.95	ID Hose.
9	2.30	3.75	3.95	Above
10	2.30	3.75	3.95	prices
				quoted

complete with fittings. Finest construction double wire internal braid. 1/4" ID Hose will carry 3 GPM at 1000 PSI. Use for hydraulics, steam, air, etc. Large quantities available at greatly discounted prices.

PESCO HYDRAULIC GEAR TYPE PUMP

Rated at 3 GPM, 3750 RPM, 1500 PSI. 5/8" drive spline. Gov't cost over $90. Yours for only **$9.49**

NEW VICKERS MFO H.P. Hydraulic Motor

Unit is compact, powerful. Displaces .507 cu. in. per revolution. 6 gal. per min. at 3000 RPM, 1500 PSI. Positive displacement. Angle type. Rated at 6 H.P. Rotates either direction. Unit can also be used as a pump. Here is the finest hydraulic motor available at a fraction of its new cost of over $200.

Our price only **$19.95**

NEW VICKERS HYDRAULIC MOTOR: Similar to above, model MF107113OBCF2, cu. in. displacement per rev. .378, 3600 RPM 1000 PSI, (unit similar to above only a smaller displacement and H.P.) only **$16.50**

MOUNTED POINTS WITH 1/4" AND 3/32" SHANKS

Assortment of:

10 stones	$1.20
25 stones	$2.75
50 stones	$4.50

NEW SURPLUS PRESSURE GAUGES

2 1/2" Dial. Following pressures available: 30"-0-60#, 0 to 600#, 0-30#. Your choice $1.30

4 1/2" Dial. Std. quality gauges; std. pipe connections. Finest brands. Retailing at $7.00 and up. Following pressures available: 0 to 15#, 30"-0-100#, 0 to 100#, 0 to 160#, 30"-0-200#, 0 to 700#, 0 to 800#, 0 to 1,000#. Your choice, only $4.00

Gauges suitable for steam, air, oil, gas and water. Discounts on quantities.

AUTO TEST VACUUM GAUGE: 4 1/2" Dial, 30"-0. You can pay up to $14.00 for this gauge. PPD. only $3.25

NEW HAND TOOL BARGAINS!

A must for you at this low price!

- 17-pc. 1/4" DRIVE SOCKET SET: contains flex handle, sliding T, reeder handle; U-joint; and 13 sockets to 3/4", only ... $7.50 plus 85c postage.
- 14-pc. 1/4" DRIVE SOCKET SET; contains ratchet; sliding T; speed handles; flex handles; 3 extensions; 7 sockets to 3/4", only ..... $6.95 plus 80c postage.
- 10-pc. Heavy Duty Box End Wrench Sets: size range 5/8" to 1 1/4". A wonderful new surplus buy at $6.75 plus 60c postage.
- ADJUSTABLE WRENCH SET: 6", 8", 10" with polished heads, $1.40 plus 20c postage.
- DRILL PRESS VICE: 2 1/2" jaw opening, 2-7/8" jaw width, machine "V" grooves. Wt. 4 1/2#. Only $2.50 plus 60c postage.
- HEAVY DUTY VICE: 3" jaw width, 3" jaw opening, 180° swivel, anvil face. Wt. 10#. ..... $4.25, plus $1.15 postage.
- New 1/2" ELECTRIC DRILL, Jacobs hand chuck. Plus 12 H.S. Drills 1/2", FREE of additional cost. $27.95

Money-Back Guarantee On RECEIPT of Merchandise. All mdse. mixture of new and reconditioned unless specified new. All orders (Except those specified F.O.B. Tulsa) are shipped Post Paid, saving you up to 25%, on total delivered cost!

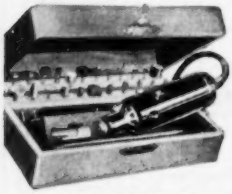
Write For Free Catalog Describing Thousands of Bargain Cutting Tools.

T & T TOOL 521 W. SECOND TULSA, OKLA.

MOST PRACTICAL TOOLS YOU CAN OWN!

DREMEL Electric MOTO-TOOL
1001 USES AROUND THE HOME AND SHOP

Here is the fastest (27,000 r.p.m.) most powerful tool in its class — THE ORIGINAL POCKET-SIZE MACHINE SHOP. A jack of all trades around the workshop, it is indispensable for carving, drilling, grinding, and for sharpening tools, scissors, kitchen knives, garden tools, lawn mower blades, etc. More versatile than a ¼" electric drill as it is so light weight (13 oz.) and handy for so many small jobs. Perfect for drilling small holes to hang pictures, installing cabinet hardware, hardwood trim. Powerful, 110 V. A.C.-D.C. motor. A tool built for years of lasting service.



MOTO-TOOL NO. 2 Offers more convenience and long life features for the money than any other hand grinder. Thousands of satisfied users. Moto-Tool No. 2 (with 1 emery wheel point) **$16.50**

KIT NO. 2 Includes Model 2 Moto-Tool and 23 Accessories (High-Speed Steel Cutters, Grinding Wheels, Polishers). Packed in sturdy hardwood case..... **$23.50**

A PRECISION TOOL WIDELY USED IN INDUSTRY

For Sharpening Tools

Speeds Up Repair Jobs

Great for Hobbyists

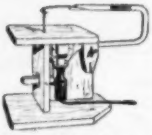
AMAZING FOOT-A-MINUTE
(7,200 Strokes Per Min.)
CUTTING SPEED!

DREMEL

ONLY **$5.85** with 3 saw blades

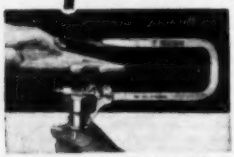
FREE PROJECT PLANS

Make your own jig saw. Complete plans and six project patterns included FREE.



FAMOUS DREMEL ELECTRIC MOTO-SAW

Here is a genuine craftsman's tool with dozens of household and workshop uses. It is perfect for all sorts of coping and jig saw work, making window valances, knick-knacks, hobby projects, etc. High-speed, reciprocating-type motor easily cuts asphalt and rubber tile, also masonite and formica — wood up to ¾". Perfectly safe for children—so easy to handle that women love to use it. Has only two moving parts, never needs oiling. A high quality tool used by craftsmen, tile layers, and carpenters.



Cuts scrolls like magic!

SEE YOUR DEALER! If he can't supply, order direct on five-day trial, money-back guarantee. Remit in full for postpd. shipment; or, send $2. now, pay postman balance plus postage and C.O.D.

DREMEL MFG. CO. **Dept. 123-A, Racine, Wis.**

They're Living Off Another Planet

[*Continued from page 135*]

year, U. S. newspapers carried reports of mysterious objects sighted in the skies.

Up until late December, the authors kept Vana and Garry Verth on Earth. But Vana, in return for a horse-and-buggy ride, had promised Garry a ride in a flying saucer, and now the two are off. They will make an extended stopover on a space station revolving around Earth (those enterprising females beat us to the punch on that construction job) before continuing on to Terra. Once they get there, goodness knows what will happen to Garry. The girls may fall out among themselves vying for his favors or they may raid us for more men.

Editors Hesitated to Use Strip

"Twin Earths" seems so plausible that the editors of at least one large city newspaper hesitated to publish the strip. They remembered how Orson Welles had scared the daylights out of radio listeners with his realistic imitation of a Martian raid on New Jersey. They were afraid a lot of their readers would mistake the logical fantasy of "Twin Earths" for fact. So they called in their science expert for consultation.

He pointed out that Pythagoras had anticipated Lebeck by about 2,400 years. That intellectual Greek had estimated that there were 10 planets in our universe, though only five were known in his day. He called one of the unknown five Counter-Earth, and figured that it was revolving in an orbit that kept it forever hidden from us.

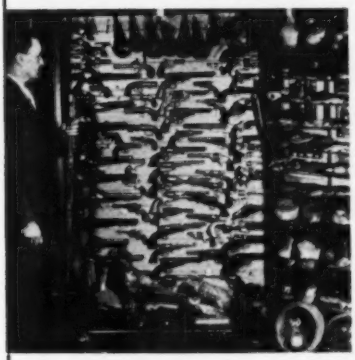
Reassured, the newspaper editors decided to take a chance on letting their readers follow the adventures of Vana and Garry Verth. END

From Pillar to Pole

THE Sunday-school teacher was describing how Lot's wife looked back and suddenly turned into a pillar of salt.

"My mother looked back once while she was driving," contributed little Johnny, "and she turned into a telephone pole."—*Friendly Chat.*

1953 *Heike's* Hobby Catalog #19 35c



Collector's catalog of historical and scientific items.—Selling 450 historical firearms, 20,000 Indian Relics—Collectors Cartridges—Coins—Confederate money.—Revolutionary, Civil-war, Indian Wars Flintlocks, percussion Muskets, Swords, Bayonets, Pistols, Revolvers, Ramrods, Bullet Molds, Percussion Caps, Powder Flasks, Powderhorns, Blunderbusses, Civilwar Handgrenades.—**Stagecoach Carbines, Winchesters,** Kentucky Rifles, Pepperboxes, Derringers, Gun Barrels, Locks—Nipples—Frontiers.—**Arrowheads,** Tomahawks, Battle Axes, Metados, Gempoints, Spearheads, Peace Pipes, Arrowmaking Stones, Discoidals, Bannerstones, Gorgets.—**Steerhorns,** Buffalo Horns, Eagle Feathers, Elk Antlers, Bo-wood, Rio-horns, Mounted Deer Heads, Squirrels, Pheasants, Ducks, Owls.—**Agates,** Fossils, Minerals, Marine Shells, **ViolinWood.**—Daguerrotypes, Ambrotypes, Scalpers, Duelling Pistols, **Gold Dollars,** etc., too numerous to mention.

SPECIAL: 5 Pre-historic Arrowheads $1.48—10 Indianhead Cents $.77—Tomahawk $4.65—Hammerstone $2.88—Civilwar Musket $21.00—Bayonet $1.98—Scalper $2.88—Stone Pestle $8.88—Agate, Fossils, Geode, Galena, Fools Gold, Smithsonite, Molybdenum, Crinoid, Gastropod, Crystal, Jade, Gypsum, Azurite, Marcasite, Ruby, each $.48.

Send 35c for your profusely illustrated 1953 catalog #19 today.

R. HEIKE, 153 F Street, Wenona, Ill.

BUILD YOUR OWN POWER MOWER

With Parts We Furnish Why break your back mowing field or lawn. Now anyone can save time, money and effort by building their own Power Mower. Build it to fit your needs, in a short time without special tools.

PULLS ITSELF, STEERS ITSELF

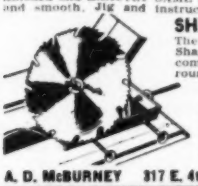
WRITE FOR FREE BUILDING INSTRUCTIONS—NO OBLIGATION!

T & H Mfg. Co., Dept. 111, 811 E. 31 St., Kansas City, Mo.

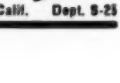
FILE SAWS THE RIGHT WAY

SO EASY: With this new filing jig and jointer anyone can now sharpen any handsaw like new! When file hits hardened steel rollers teeth are finished and EXACTLY SAME HEIGHT. All teeth cut and saw runs true and smooth. Jig and instructions **$2.95** postpaid. Free literature.

SHARPEN YOUR CIRCULAR SAWS



The RIGHT WAY on your own saw table. Sharpens rip, cutoff, hollow ground and combination blades—6" to 10". Saws stay round with correct bevel. Precision made, easy to use. GUARANTEED. Only **$8.95.** Includes $3.00 Grinding wheel. **"TRU-CIRCLE"** saw set automatically sets teeth at 10° or more **$2.95.**



AT DEALERS OR POSTPAID

A. D. McBURNEY 317 E. 4th St., Los Angeles 13, Calif. Dept. S-25

FOR FASTER, SCRATCH-FREE SANDING . . . . . USE DREMEL STRAIGHT-LINE ACTION SANDERS

Model 2000 **$24.50**

Price includes sturdy steel storage case; 25 asstd. abrasives; 1 sheepskin pad.

WORLD'S FINEST FINISHING SANDERS—Patented Straight-Line Action sands with the grain of the wood—eliminates cross grain scratches and orbital swirls.

MORE SANDING SURFACE PER DOLLAR means more work done. Faster action (14,400 sanding strokes per min.); more than **three times** as fast as other type sanders!

POWERFUL, high-speed, lifetime reciprocating motor (110 V. 60 cycle A.C.)

EASY, ONE-HAND OPERATION less tiring on vertical and overhead operations. Sands into corners—other tight places.

TROUBLE-FREE USE assured. Only two moving parts, never needs oiling. No armature, brushes, gears or bearings to wear out and replace.

Professional Model 2000 is a favorite with carpenters, painters, contractors and family handymen! Ideal for finish sanding on flush doors, panelling, cabinets, etc. Superb for waxing cars, polishing furniture, etc.

A "must" for dry-wall joints. Sands into tight corners. Ideal for refinishing.

TRY THIS SIMPLE TEST: Sand a piece of wood by hand, using the four motions below. Note slightest cross-grain action produces scratches and swirl marks. Sanding *with-the-grain* gives scratch-free satin finish. This test proves conclusively why professional craftsmen always sand with-the-grain—never cross grain.

FOR HOBBYISTS . . . HANDYMEN AND HOUSEWIVES

Lighter-capacity Model "A" is an all-purpose sander—polisher—massager. Takes the work out of polishing, sanding, etc. Effective body massager, too! Weight 2¼ lbs; has 12 sq. in. (2⅜"x5¾") sanding pad surface. Price includes 6 abrasive sheets; 1 sheepskin; 1 felt pad. **$14.85**

FREE—16 PAGE SANDING GUIDE

A "How-To-Do-It" booklet, full of helpful hints on sanding and refinishing procedures, is packed free with each Dremel Sander. Extra copies available for 8.25.

SEE YOUR DEALER! If he can't supply, order direct on five day trial, money-back guarantee. Remit in full for postpd. shipment; or, send $2 now, pay postman balance plus postage and C.O.D.

DREMEL MFG. CO. Dept. 123-A RACINE, WIS.

Just lay *prefinished* Bruce oak flooring right over your old floors . . . no sanding or finishing

You can give your home new beauty at low cost with a prefinished Bruce Hardwood Floor. Completely finished—even waxed—at the factory, this highest quality oak flooring can be nailed right over old floors. No sanding or finishing . . . no mess or smell. Ready for use as soon as laid. Made in strip or block (parquet) design.

"Scratch Test" Finish — The Bruce factory-applied finish is baked into the pores of the wood. The "Scratch Test" (left) will prove to you that this durable finish does not scratch or chip or mar like an ordinary floor finish.

Moderate in cost — A new Bruce Hardwood Floor will cost you less than a good rug or carpet. Easy to keep clean and beautiful, too. It's just the thing to use in fixing up or adding a room. Let your lumber dealer give you an estimate. Mail coupon below for colorful literature.

MAIL FOR FREE LITERATURE

E. L. Bruce Co., Box 397-E, Memphis 1, Tenn.

Send complete information on prefinished Bruce Hardwood Floors.

Name.....

Address.....

City..... State.....

BRUCE **Bruce Hardwood Floors**

Product world's largest hardwood flooring maker

Gus Fixes Their Wagon

[Continued from page 196]

"He's pulling something! Let me slap him around! Let me slap—"

"Hold it! Try again, buster. This is your last chance."

Gus shrugged his shoulders and fiddled with the engine aimlessly. The gunman's threat rang a bell somewhere and as he puzzled over it, he reached down with a wrench, deep beyond the glow of the lamp, and loosened some bolts.

Slap around . . . slap . . . something about the word was as familiar as a nursery rhyme, a missing ingredient, teasing at the edge of his mind.

New Points Turn the Trick

"Trying to think! Bouncing his skull on the concrete would help."

Bouncing . . . it happened again. Bouncing was a result of varying degrees of flexibility, a springiness . . . a spring . . . slap and bounce! That was it!

"Okay, move that miserable friend of yours out of my way. I think I've found your trouble."

"It's about time!"

Gus went and got a new set of distributor points. The others had seemed all right, but actually they were what caused the car to sputter at high r.p.m. The constant flexing of the point spring over a long period of time had gradually sapped its strength until the spring failed to keep the contacts closed for the proper length of time. The spring was allowing them to slap and bounce at high r.p.m. The resultant charge of electricity reaching the plugs was too small to keep the engine running properly.

Gus Reaches the End of His Rope

It wasn't what Gus would call a common ailment. Being about the least expensive part of an engine, points were usually changed fairly regularly. But there were some home tinkerers who had the idea that clean points meant the distributor was in good order, no matter the age. Gus figured the Zephyr's owner was like that.

He installed the new set, adjusted them to the proper setting and raced the engine. It was smooth as fine oil.

"Okay. She's fixed. Now get out of here and leave me alone!"

"With pleasure, buster, but there's one

[Continued on page 258]

New...SHOPMASTER

PRESENTS THE SENSATIONAL

Universal

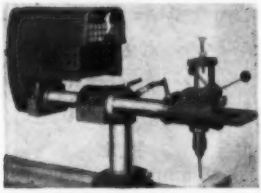
INDIVIDUAL COMBINATION

Power Tool

Patents Pending

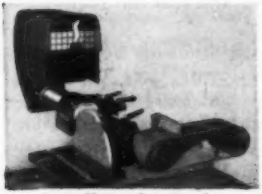
As Ball Bearing Circle Saw

Mitres, compound mitres, cross-cuts, dados, rips, cups, grooves. 8" blade, 2 9/16" cut.



As Ball Bearing Drill Press

3" stroke, 18" throat. Drill, rout or mortise at any angle, in 36" circle.



As Ball Bearing Sander

Either belt or disc locks in vertical or horizontal position, or at any angle.

It's a Circle Saw, Drill Press, Sander, Router, Shaper, Lathe

All in one

The most versatile and useful all-purpose woodworking power tool ever developed . . . a complete workshop in itself! Easy to convert . . . It's light, flexible and simple to operate, yet precision-built to finest professional quality.

All Moving Parts Glide on Ball Bearings

Moving parts glide smoothly, effortlessly on friction-free ball bearings. Easy-to-read calibrations permit quick, precise setting. Locks in any position. Beautifully finished with chrome-plated column crank, lock handles and shaft caps.

V-Belt drive, 4 speeds

Powers other tools

Tools changed in seconds.

Complete with saw, drill, disc and belt sander, and safety type chuck. Mounts on special table . . . . . See other famous individual Shopmaster tools. Other tool accessories available.

$249.95 plus motor

Shopmaster, Inc., Dept. PS-1
1214 Third Street South, Minneapolis, Minnesota
Send information on new Shopmaster Universal Power Tool TODAY!

Name.....

Address.....

City..... State.....

AMAZING TIME SAVER

New No. 555 Millers Falls Impact Tool

Runs, sets, loosens and removes nuts or studs, taps, threads, drives screws

Sleek, powerful, compact — without question this new No. 555 is the most remarkable, most versatile electric tool ever developed. For production and maintenance in factories, for garages and repair shops, for service work of all kinds — it has capabilities out of all proportion to its size.

When torque resistance is low, it drives continuously at 1900 r.p.m. Then, it automatically shifts to impact action as the resistance increases — with 2000 blows per minute exerting up to 100 ft. lbs. torque.

Weighs only 6¾ lbs. Easily controlled with one hand. Ruggedly built for long, hard service. Quickly reversible. Write for full information on this amazing new tool that cuts time up to 90% on many jobs.

MILLERS FALLS COMPANY
Greenfield, Mass.

Standard 1/2" square drive - wide variety of attachments

SEND FOR FREE BULLETIN 564

MILLERS FALLS TOOLS
SINCE 1868

The Mark of Superiority

Gus Fixes Their Wagon

[*Continued from page 256*]

thing more—just so you won't holler copper for a while."

The two men grabbed him and trussed him up with a length of rope Gus kept in a corner. Then the one with the gun ripped the telephone off the wall and dropped it near Gus.

"Something to amuse yourself with! So long, grease ape!"

The two convicts jumped in the car, backed out with a squeal of rubber and roared down the street.

Stan to the Rescue

Gus struggled with the rope, but the cons had done too good a job. He relaxed his muscles and waited. At least Stan hadn't gotten mixed up in it. *Might have tried something rash,* he thought. *These young squirts . . . say, what's keeping that kid?*

As if in answer to his thoughts, a car drove up on the concrete apron outside, and a cracked voice called out: "Hey Gus! You in there?"

"Hurry up, Stan! Get me out of these ropes. I've got to get to a phone. I'll explain later."

They drove to a drugstore a couple blocks away, and Gus ran inside. He dialed a number, and Officer Billy Ryan answered.

"This is Gus, Billy. You on the lookout for a couple of escaped cons?"

"Yeah, we been watching for 'em. Why?"

A Tip for the Cops

"Well, they've just left my garage—they're headed for Chicago. But I think you'll find them a short distance out of town on the westbound highway. Their car will break down, probably in the next 15 minutes or so. It's a black 1940 Lincoln Zephyr. You can't miss it!"

Gus could hear Ryan shouting at the dispatcher to send a car out and call the highway patrol for assistance.

"Hope you're right, Gus. But how do you know the car will break down?"

Gus told him how he had fixed the car, and of the other "adjustment" he had made.

"Nice going, Gus. You pulled a neat trick! So long."

Gus went back to the car and drove Stan home. He told him the whole story.

It *was* a neat trick. Only mechanics and a few owners of that model Zephyr would

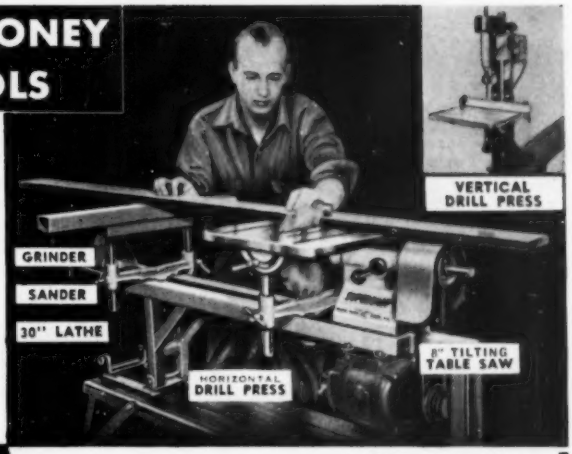
[*Continued on page 260*]

How You can SAVE MONEY on POWER TOOLS

SUPERSHOP - 5 Big Power Tools In One

SUPERSHOP is a precision-built workshop. 100% ball-bearing. All running parts precision ground. Rigid all-steel frame. Handles big jobs. Easy to use. With SUPERSHOP you are master of hundreds of operations. You make money, save money, enjoy yourself. Direct from factory to you. Save cost of handling through distributors. Money back guarantee. 15 day free trial. Mail coupon for free catalog.

EASY PAY PLAN



FACTORY TO YOU $79.95
... Free Catalog ...
Mail this handy coupon

POWER TOOLS, INC.
BELOIT, WISCONSIN

MAIL COUPON TODAY

POWER TOOLS INC.
243 YATES AVE.,
BELOIT, WISCONSIN

Rush FREE catalog on money-saving SUPERSHOP

NAME_____

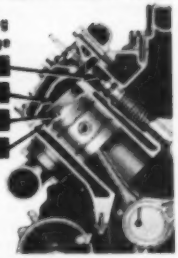
ADDRESS_____

CITY, STATE_____

Proved by Acetylene Torch

Miracle Power Lubricates When Oil Burns Off

An acetylene torch instantly burns motor oil. Since engine heat at times is greater, oil alone obviously won't lubricate properly. You need Miracle Power in gas and oil because (as shown on the right) it is not affected by extreme temperatures. The colloidal synthetic graphite and other special lubricants in Miracle Power cling to metal . . . protect engines against heat and wear. Oil burns at 550°. Higher engine temperatures prove you need Miracle Power to provide adequate lubrication.



Stops DRY STARTING Damage . . . Treats the Engine, Not the Oil!

During stops, oil drains off vital engine parts and it takes up to five minutes to pump it back after starting. Meantime, dry metal grinds against dry metal. Result: wear . . . lost power . . . repairs.

Use Miracle Power to protect engines with a breathlike lubricating film. It is not a purge—not a detergent—not a "soup-up" chemical—it treats the engine, not the oil.

THE AP PARTS CORPORATION
Miracle Power Division
811 AP Building • Toledo 1, Ohio
Manufacturers of:
MUFFLERS • PIPES • MIRACLE POWER • dgl 123

Lubricates *Right* . . . from the Start

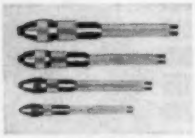
Get Miracle Power (money back guarantee) at gas stations, garages and Ford, Kaiser-Frazer, Willys and other car dealers — 75c ($1.00 in Canada)

© The AP Parts Corp., 1953

Starrett TOOLS FOR SMALL WORK

PRECISION SCREWDRIVERS NO. 555

Precision made by Starrett craftsmen for aircraft and electronic instrument mechanics, model makers, watch and instrument repairmen, office machine servicemen, jewelers, opticians, etc. Six sizes (.025", .040", .055", .070", .080", .100" blades) with hexagon swivel top, knurled handle. Replaceable blades held in quick-acting, firm-lock chuck. Grooved ends identify size. See them at your Starrett Tool distributor's.



Starrett PIN VISES

Ideal for holding small parts, stock or tools. Four different sizes with range from 0 to .200 inches. Available separately or set of four in red, plastic case.

NO. 240

SEND FOR IT — ONLY 10¢
Starrett "Tools and Rules" Book
50 page booklet shows the right tools for any precision measuring job. 100 pictures plus helpful reference tables. Send only one dime. Address Dept. PS.

THE L.S. STARRETT COMPANY · ATHOL, MASS., U.S.A.

STARRETT TOOLS

Starrett

SINCE 1880
WORLD'S GREATEST TOOLMAKERS

Buy THROUGH YOUR INDUSTRIAL DISTRIBUTOR

MECHANICS' HAND MEASURING TOOLS AND PRECISION INSTRUMENTS
DIAL INDICATORS • STEEL TAPES • PRECISION GROUND FLAT STOCK
HACKSAWS, BAND SAWS and BAND KNIVES

Gus Fixes Their Wagon

[*Continued from page 258*]

know about it. Once, a 1940 Zephyr had come in behind a tow truck with its radiator torn to pieces, and Gus had discovered that on that model the radiator was fastened only at the bottom. Sometimes, if the bolts loosened a little, and if the car was moving fast enough against a strong wind, the radiator just leaned into the fan blades. The result was a frightening noise, loss of coolant, and an overheated engine freezing up.

"Say, that's a pretty good stunt, boss!"

"Sure, if it works and they catch them." He stopped in front of Stan's house.

"You know, since I'm working for such a smart boss, my job is on a higher level than I thought. Don't you think I ought to have a raise?"

Gus took a playful swing at Stan as the young man jumped out of the car and said good night.

Gus Gets Some Good News

Gus had finished dinner and was settled down by the radio when the phone rang. It was Billy Ryan.

"I thought you'd be interested in how things turned out. We found the car abandoned at the edge of the road—"

"You didn't catch them, then?"

"Wait a minute! A little girl came running up to us. She was on the way to a neighbor's after sneaking out the back of her house to get help. Said there were a couple of bad men getting ready to shoot her folks. Well, we got there just in time. They're in our little cage right now. And tomorrow they'll be heading back for the big gray walls—thanks to you, Gus."

Gus grinned and glanced down at his wrists—they were still sore from the ropes the cons had tied him up with.

"Don't mention it, Billy," he said into the phone. "Always a pleasure to help out the law." END

Next month: Gus meets a news deadline.

Put in Her Place

A young wife just learning to drive had hopelessly gotten traffic snarled up in trying to make a left turn at an intersection. Excitedly she turned to her husband and asked what to do.

"I don't know," he replied calmly, "but I'm sure if you climbed into the back seat you could figure it out."—*The Right Hand.*

Amazing Tests Prove...

SYNCRO SANDERS DO MORE WORK PER SQUARE INCH OF SANDING PAD SURFACE THAN SANDERS COSTING TWICE AS MUCH.

In material removal tests for portable orbital sanders conducted in the Syncro laboratory—on most of the leading, medium priced sanders on the market today—it was proven conclusively that sanders manufactured by Syncro Corporation remove more material per square inch of sanding pad surface than sanders costing more than twice as much. This is your proof that Syncro Sanders are your best buy.

No. 504 $19.95

and

Syncro Power Units are guaranteed against burn out all during ownership or replaced Free! Platen or paper carrier is designed to do ALL finish sanding . . not just large flat surfaces. The light weight of the Syncro Sander makes it ideal, and much less tiresome for vertical sanding use. Perfect for smoothing seams on dry walls. NOT an orbital **type sander.** Buy Syncro at hardwares or postpaid, complete: **$19.95.**

No. 504-D in METAL CASE

Sturdy 9"x5" metal case holds "504-D", 10 sandpapers, polish pads, cord. At Hardwares or postpaid **$22.95**

QUALITY SANDERS By

SYNCRO CORPORATION

DEPT. G-13, OXFORD, MICHIGAN, U.S.A.

GIGANTIC SAVE-TO-70% **MAIL SALE** WAR SURPLUS EXCESS INVENTORY BANKRUPT STOCK

BURDEN PAYS ALL SHIPPING CHARGES

POWER PLANTS and GENERATORS

- **Master Plants.** 5KW, 115-230-v, 60-c, 4-cyl. engine, manual start. Cost over $1100..... **$531.70**
- **Onan Plants.** 5KW, 115-v, 60-c, 4-cyl., push button start. Cost $1400.00 ..... **$689.50**
- **Onan Plants.** 1 KW, 115-v, 60-c. Full-automatic start-stop. Cost over $500.00.... **$281.50**
- **Burdex Plants.** 2KW, 115-v, 60-c. **$279.50**
- **Homelite Plants.** 1.5KW, 115-v, 60-c **$199**
- **Kato Generators.** 5KW, 115-v, 60-c, with control panel, drive pulley, etc. 1800 RPM. 1 phase. Cost $550 ..... **$259.50**
- **Generators.** 115-v, 60-c. Ball bearing. 500-w. **$94.50;** 1000-w, **$99.50;** 2000-w, **$138.40**

Write for Power Plant Catalog

HYDRAULIC BARGAINS

Build your own loaders, diggers, pressers, plow lifts, etc. Lowest prices. Savings to 80%.

Pump. 1000 lbs., 12 g.p.m., 400 r.p.m. **$45.50**
Cylinder, 2½" bore, 19" stroke, 9000 lb. lift. List $91.50. ..... **$18.49**
Cylinder. 2" bore, 10" stroke, 3141 lb. lift. Sale **$16.50**
Control Valve. For single or double acting cylinders. Sale **$17.98**
Pressure Gauges. 1000 lb., 1500 lb., 2000 lb. **$3.49**

Write for Hydraulic Data-Catalog.

Winches - Hoists - Blocks

- **Boat,** dock, business hand winch, 1-4 gear ratio. Special..... **$19.95**
- **Farm - Truck - Contractor** heavy duty hand winch. Dual ratio 1-3, 1-9. Finest cast steel construction. Special **$29.98**
- **Chain Hoist.** Lever type. 3000 lb. **$19.48**
- **Truck Crane-Winch.** Mounts on trucks and pick-ups. Special **$84.60**
- **Winch Cable.** ⅜" super-flexible (4000 lbs. cap.) 50' with load hook **$9.90**
- **Army Snatch Block.** 13,000 lb. **$12.98**
- **$165 Airplane Winch.** Beautifully made. Requires reducing gear. Sale **$17.49**

SUPER CLOSEOUT BARGAINS

- **Remote Motor Operated Channel Selector** for TV sets, 110-v, 60-c. Regularly $45. SALE **$15.49**
- **Dial** (3½") **Thermometer** (mantel). **$1.49**
- **Garden Tractors** (2 h.p.)..... **$119.50**
- **Snow Blower** for above tractor..... **$29.50**
- **Flexible Shaft** (40") with chuck..... **$3.95**
- **Finest Gas Chain Saw** ($326)..... **$279.50**
- **Plane Propellers** (7' 6") ($151)..... **$12.95**
- **Search Lamp Bulbs** 4,800,000 C.P. output! 24-volt (6 for **$7.49**) 110-volt **$1.95**

WATER PUMPS and SYSTEMS

Save up to 60%. Ask us for expert advice on your problem. Pumps for wells, basements, weed spraying, septic tanks, garden irrigation, etc.

- **Centrifugal Pumps.** Cast iron, stainless steel shaft, bronze impeller, ball bearings. No. 75, ¾", **$18.90;** No. 100, 1", **$28.90;** No. 150, 1½", **$35.60.**
- **Bronze Rotary Pumps.** *Low pressure* (25 lbs. max.) Self priming. No. 12, ½" ..... **$12.75;** No. 34, ¾", **$16.95;** No. 101, 1", **$22.95;** *Hi. Pressure type* (150 lbs. max.) No. 612, ½" **$14.50;** No. 634, ¾", **$20.95;** No. 610, 1", **$27.95.**
- **Irrigation War Surplus Pump.** 10,000 g.p.h. 2½" intake. Two 1½" outlets. Special **$39.50**
- **Burdex Shallow Well System.** 110-volt, 60-c. 500 g.p.h. 40 lbs. pressure, fully automatic. Easy to install **$69.50**
- **Adj. Auto Pressure Switch. $4.95;** ¾" foot valve. **$2.49;** pressure gauge 0-60 lbs. **$1.89;** also hose, strainers, etc. at real savings.
- **Hand Pump.** Lever type, high capacity. Pump basements, tanks on farms, etc. Cost $35. **$27.80**

Write for useful Water Pump Data-Catalog

Miscellaneous Surplus Bargains

- **Surveyors Farm Level** **$37.95**
- **Surveyors Level-Transit** **$77.50**
- **Laboratory Small Microscope** (200X) **$13.95**
- **Navy Inflatable Life Belts** **$1.09**
- **Auto Illuminated Compass** **$6.95**
- **Binoculars.** Top Quality. 7x50..... **$42.95**
- **NAVY Thermometer** (5" dial) with 5' tube. Shows outdoor temp. −40 to 120°. Cost $49.50. SALE **$9.85**

SPECIAL FOR THE MONTH

WESTERN ELECTRIC CITY TELEPHONES

- Genuine W.E. wall or desk phones, same as used on city telephone systems. Useful for inter-communication, private system, extension ringer, etc. Specify "wall" or "desk." Original cost over $20.00. Prepaid Sale, **$4.99** each. Two for **$9.69**

CORRESPONDENCE SCHOOL BARGAIN

- Famous engineering school closes because of high operating costs. We offer limited quantity of complete courses, Radio or Electrical (27 fine lesson texts) at fraction of regular tuition rate. Deal #1, Complete Radio or Engineering Course Texts, **$5.95.** Deal #2, Combined Radio and Electrical Course Texts, **$9.95**

AIR COMPRESSOR UNITS

Paint, blow up tires, control termites, clean greasy engines, blow dust, etc. Build your own or buy ready-built units.

- **DeLuxe Air Kit.** Consists stainless tank 12"x24", finest 1-cyl. 3 cfm piston compressor, valves, gauge, fittings, hose, excellent paint gun, blow gun, pressure regulator, chuck and "How To Build Portable Outfit." Special **$45.49**
- **Economy Air Kit.** Same as above except 6"x24" tank and no regulator or paint gun. Each..... **$31.90**

- **Air Components.** Top quality. 1-cyl. piston comp. **$20.50;** 2-cyl. pis. comp. **$49.50;** Adj. Auto. pressure switch, **$4.95;** pressure regulator, **$2.65;** Adj. safety valve, **$1.95;** Pressure gauges, 0-160 lbs. **$1.89.**
- **Air Operated Power Grease Gun...$23.95**

Write for interesting Air Data-Catalog

ORDER FROM AD, or Write for 4 FREE Catalogs!

OUR 30-YEAR POLICY: • Everything Guaranteed Satisfactory • We Pay Shipping Charges in U.S.

FREE CATALOG **BURDEN SALES COMPANY**

823 "O" ST. LINCOLN, NEBRASKA

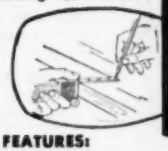
Most versatile folding rule—

NEW STANLEY "100 PLUS" EXTENSION RULE No. X226

Make no mistake, the new Stanley "100 Plus" Extension Rule is the handiest, most versatile folding rule you can buy.

Read it four ways — on inside measurements using slide, entire reading is centered at one point — no chance for errors; may also be used as an ordinary extension rule for inside measurements, and as a regular folding rule reading from either end.

Use it as a marking gauge for measurements in 2" and 4" multiples.



CHECK THESE "100 PLUS" RULE FEATURES:

- Easy to read Big Black Numbers on White Sticks.
- Square ends — butt flush with work.
- Opens to even inches at end of each stick.
- Handy for end-to-end measurements — opens in 6" multiples to full length, 72".
- 8-inch Brass slide removable for use as depth gauge.
- New plastic finish wears four times longer.
- Extra Thick Rock Maple Sticks graduated all edges.

For real rule value ask for the X226 at your hardware dealer's. $2.65 each.

STANLEY TOOLS, New Britain, Connecticut

THE TOOL BOX OF THE WORLD

STANLEY

Reg. U.S. Pat. Off.

Hardware • Tools • Electric Tools • Steel Strapping • Steel

P1

TOY PATTERNS — 6 for 25c
Ideal gifts for the youngsters.
Two sets — 6 full-size patterns in each.

P2

SEND TOY PATTERNS NOW!

Stanley Tools, 413 Elm St., New Britain, Conn.
(In Canada: Stanley Tool Co. of Canada, Ltd., 413 Stanley St., Roxton Pond, Quebec)

Enclosed is ..... Send Patterns checked

..... Patterns P1 (25c) ..... Patterns P2 (25c)

Name .....

Address .....

City and State .....

The Mounties Become Mechanics

[*Continued from page 101*]

young woman who fed one holdup man in a cubicle-like cell while her husband roamed the muskeg in search of a confederate.

Wife Holds the Fort

When the constable returned with the other criminal, I asked if he had not been worried about his wife. "No," he answered. "She's the best jailer, radio operator, car driver the force could hire."

Although the Mounties are more dependent upon mechanical equipment than ever before, an inhibition restraining the use of one particular piece of equipment still prevails from deep in the force's past. This item is the revolver. "Never fire first!" is a warning passed on to new Mounties.

In the frontier town of Prince George, where burly loggers from the pine woods and strapping jackhammer crews from the vast Kitimat power project often come for a wild week end, I had coffee and hot cakes with a rangy constable who had broken his right hand on stubborn jaws three times in a year and a half. "But I never threatened a drunk or a bully with a gun," he assured me.

Order Without Gunplay

Does the Mounties' reluctance to shoot ever imperil their own lives? In Montreal in 1950 a bank robber killed an unarmed Mountie constable. Grim men flung a network of sharp eyes and pointed questions across the nation. Five months later the slayer was caught near Big Beaver, Sask. Within another five months he had dropped through a gallows trap door.

The late Assistant Commissioner Denny La Nauze once said to me: "A policeman who shoots first and asks afterwards will nick a friend as well as foe. A policeman whom it is positively dangerous to shoot, because retaliation will be rapid and sure, can get his commands obeyed without threats."

Despite the airplane and the motor car, troopers journeyed 48,475 miles by dog

[*Continued on page 264*]

Now You Can Have

A Dry Basement

with beautiful colored walls and floor

PLASTEX gives long-lasting protection against water. Also bright, colorful, easily washable walls and floors. Basements painted with PLASTEX in 1939 are still dry and attractive. Water up to 10 ft. has been successfully kept out by PLASTEX.

PLASTEX is not a water mixed material. It is formulated of synthetic resins especially to resist water pressure. The hard glossy PLASTEX finish is not easily soiled.

PLASTEX is also excellent for use in kitchens, bathrooms and for interior trim—where resistance to water, grease, etc. is necessary. PLASTEX is available in many colors making possible lovely color combinations. Easily applied by brush.

Color chart and complete information will be sent on request.

PLASTEX

Steel Protection & Chemical Co., Inc.
153 Bridge St.
Mooresville, Indiana

START A BUSINESS this quick way

with

FOLEY LAWN MOWER SHARPENER

"I have taken in 100 mowers in 5 weeks since I got my Foley,—with no advertising," says George C. Wise. "In two months I have sharpened 155 hand mowers, 6 power mowers and 1 trimmer. My machine has paid for itself and everything I take in now is all profit"—from Otis Zacharia.

Here's a business you can start in spare time, and begin to make a CASH PROFIT right away. The Foley handles up to 3 or 4 mowers per hour, and prices run $1.50 to $3.00 for hand mowers, $5.00 to $8.00 for power mowers.

FREE— VALUABLE ILLUSTRATED BOOK shows how to sharpen power mowers. Foley prices are low—easy payments available. Mail coupon today—we'll also send FREE PLAN telling how to start your own business without previous experience. No salesman will call.

FOLEY MFG. CO.,
108-3 Foley Bldg., Minneapolis 18, Minn.
Send FREE BOOK "How to Sharpen Power Mowers," and FREE PLAN on lawn mower business.

NAME.....

ADDRESS.....

BUILD YOUR OWN POWER TOOLS

SAVE $50 OR MORE

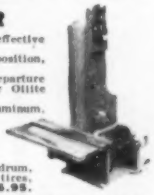
Exclusive GIL-BILT Build-It-Yourself Features
- No machining—build easily with hand tools only
- No blueprint reading—step-by-step pictorial plans, full scale patterns, actual photographs
- Sturdy wood, steel, and aluminum construction
- Capacity and performance of commercial tools selling from $60 to $210.00
- Proven design—nationally advertised and sold for over 5 years

GIL-BILT 10-INCH TILTING ARBOR SAW

- 27x28 in. table, 13½ in. capacity in front of blade
- 10 in. blade cuts 3¼ in. deep, tilts full 45 degrees
- Floor model 34" high, table always stays level
- New Departure ball bearing arbor, ¾" precision shaft turned down for ⅝" bore blades, alum. housing, shipped ready to run
- Jackscrew and ⅝" in. dia. handwheel lowers and raises blade
- Cast aluminum miter gauge and self-aligning rip fence guide

GIL-BILT Metal Parts Kit includes Plans, ball bearing arbor, miter gauge and bar, rip fence guide, dado insert, lock knobs, jack screw mechanism and handwheel, and all other metal parts (less blade).....$21.95
Same Kit with 10" Combination Blade.....$24.90
Same Kit with 8" Combination Blade.....$23.90

GIL-BILT BELT SANDER



- 84 sq. in. sanding surface. Over 4 times the effective area of a 10 in. disc sander.
- Belt operates in either vertical or horizontal position, does all sanding operations.
- Driver drum and pulley turn on sealed New Departure ball bearings; tension drum turns on Chrysler Oilite bronze bearings.
- Spindle and tension mechanisms of cast aluminum, completely machined and assembled.
- Belt travels 1800 ft. per min. Over a MILE of straight sanding action every three minutes. Saves more "elbow grease" than any other tool.

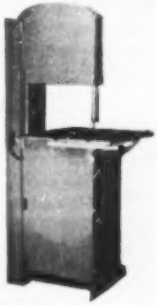
GIL-BILT Metal Parts Kit includes Plans, ball bearing spindle, 4 in. driver drum, 3 in. tension drum, tension mechanism, table tilt segments, rubber tires, cloth sanding belt, and all other metal parts $16.95.

GIL-BILT 12-INCH BAND SAW

- Cuts to center of 24 inch circle
- Handles stock up to 6 inch thick
- 18x18 inch table tilts 45 degrees
- Lower wheel and drive pulley runs on sealed New Departure Ball Bearings; Upper wheel runs on two ⅝" bore Oilite Bronze bearings.
  - Upper wheel tension and tilt mechanism of cast aluminum, completely assembled.
  - Upper and lower blade guides. Each has ball thrust bearing, self-lub bronze jaws
  - Rigid cast aluminum wheels fully machined ready-to-install. Heavy rubber tires.
  - Uses standard ⅛ inch blades up to ¾ in. wide.
  - Fully enclosed mechanism for utmost safety.

GIL-BILT Metal Parts Kit includes Plans, rubber tires, aluminum wheels, ¼ in. blade, ball bearing spindle, tilt mechanism, blade guides, table tilt segments, and all other metal parts.....$21.95

GIL-BILT 18" BANDSAW



- Cuts to center of 36 inch circle
- Maximum height under top guide 12 inches
- 28x28 in. table tilts 45 degrees
- Floor model. Motor and all moving parts fully enclosed
- Heavy ¾" drive shaft. Oilite bronze bearings never need oiling
- Rigid cast aluminum wheels precision machined, 18⅝ in. dia. with rubber tires
- Upper and lower blade guides. Each has ball thrust bearing, self-lub bronze jaws
- Upper wheel tension mechanism of aluminum and steel, completely assembled

GIL-BILT Metal Parts Kit includes Plans, rubber tires, aluminum wheels, ¼ in. blade, drive shaft and bearings, tension mechanism, blade guides, table tilt segments, and all other metal parts $34.95

Return Kit in 10 days For Refund if Not Satisfied

(Prices include postage within 300 miles. Over 300 miles add 5% to above prices.)

Also available—Plans and Parts kit for 8" Tilt/table saw.

Order Plans at $1.00 each—Sent postpaid anywhere in the World or write for FREE descriptive catalog

GILLIOM POWER TOOLS

P. O. Box 1-VA, Lambert Field, St. Louis 21, Missouri

Welding is today's fastest growing trade. Every day, more and more individuals and firms use welding. New shops are badly needed in practically all towns. Pay and profits are topsl

CASH IN ON THIS OPPORTUNITY

. . . by setting up your own welding department or shop today. One Hobart Welder puts you in business. It goes anywhere—handles any job—gives you faster, better, lower cost welds. Its 1000 combinations of heat and remote control make it easy for anyone to do the every day welding jobs. Available in choice of Electric or Gas Engine Drive models, portable or stationary. Check coupon today for details.

More welding capacity for your money

Welding Books it will pay you to own.

TEXT AND LESSONS BOOK. Covers every phase of welding. 544 pages, over 600 illus. $3.00
LESSONS BOOK. Complete operator's training course. 200 pages, fully illus. $1.00
PRACTICAL DESIGN. 100's of weld ideas in design form. 3 vols., 100 designs each ..... 1 vol. $3.50; set of 3 ..... $10.00

HOBART trains you

Learn welding quickly, easily, in modern, non-profit school. Complete or brush-up courses. Best equipment. Experienced instructors.

Check coupon for free booklet on welding school!

Hobart Brothers Co., Box P-13, Troy, Ohio

"One of the world's largest builders of arc welders"

HOBART BROTHERS CO., BOX P-13, TROY, OHIO
Send complete details on items checked.
☐ Electric Drive Welders ☐ Gas Drive Welders ☐ Hobart Trade School. Send books checked. ☐ Text and Lessons ☐ Lessons. Practical Design: ☐ Vol. 1 ☐ Vol. 2 ☐ Vol. 3 ☐ set of 3 vols. ☐ Cash enclosed ☐ C.O.D.

☐ **Welder's Vest Pocket Guide**

NAME _____

ADDRESS _____

CITY _____ STATE _____

The Mounties Become Mechanics

[*Continued from page 262*]

sled over the tundra of the Northwest Territories in 1951. Many remote Eskimo tribes cannot be reached even with aircraft because the hummocks of ice are unsafe for landings on skis. When an Eskimo woman named Mikaeyout was rumored to have slain her husband, a Mountie constable from the Pond Inlet detachment trekked 1,500 bitterly cold miles on snowshoes to arrest her. He camped in the open when the temperature dropped to 70° below.

Wings Team with Snowshoes

Assistant Commissioner Rivett-Carnac, a massive man of 50, contends that the airplane in the North should be mainly a one-way proposition if a trooper is to patrol his district efficiently. "You've got to know the trappers and the woodsmen and the natives personally or you will never really get to the bottom of the crimes and troubles in which they may be involved," he told me.

"When I was stationed at Aklavik on the Arctic Ocean," he continued, "I flew one way on patrol but I traveled by snowshoes and dog team in the other direction. I bunked with the isolated people of the wilderness and got to know them."

Autos Cover More Ground

I watched Assistant Commissioner Alan Thomas Belcher inspect the automobile fleet of K Division, which covers all of Alberta—an area nearly the size of Texas.

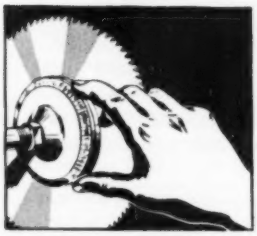
"It's not like when the cavalry column was lined up on frisky geldings and the band played *Maple Leaf Forever*," he said, half apologetically. "But we're a more effective organization because of automobiles. They may not have the dash and color and romance of horses, but they're many times more efficient in making the best use of our rather limited manpower."

Automobiles, airplanes and radio challenge the notion of the Mounties as a

[*Continued on page 266*]

NOW—40 different cuts with AMAZING, NEW

Warren DADO SAWING WASHERS



ON YOUR SAW BLADE!

NO Warp...
NO Wobble...
NO Burning!

ONLY $4.95 PER SET

4 Washers Mean Perfect Balance

Make clean, smooth parallel grooves at any angle—no chewing, no sanding. Just dial your cut—no trick screws, no vibration, strengthens blade for straight cuts. Warren Washers greatest improvement in 30 years—and most copied—look for the name on the box and washers. It costs no more to get the best—WARREN, IT'S GUARANTEED! At your dealer or order direct. Give arbor size—½", ¾", ⅝", 1"—sent postpaid.

Send for Free Booklet

WARREN DADO SAWING WASHERS CO.
Dept. 41 • Box 98 North End Station
Detroit, Michigan

"I COULDN'T GET ALONG WITHOUT MY MEZURALL TAPE RULE — IT'S MY HANDIEST TOOL..."

LUFKIN
CHROME-CLAD
MEZURALL

177

"My Mezurall with its adjustable hook gives me accurate inside measurements. It also measures odd shapes, as well as butt end and hook-over measurements. The jet-black markings are easy to read against the durable chrome white background which will not crack, chip, or peel. I can replace blades in a matter of seconds. You can get them in 6, 8, and 10 foot lengths."

BUY **LUFKIN**

TAPES • RULES • PRECISION TOOLS
AT YOUR HARDWARE OR TOOL STORE
THE LUFKIN RULE CO., SAGINAW, MICHIGAN
132-138 Lafayette St., New York City • Barrie, Ont.

Save Time! Save Money! Get this--

BIG NEW BOOK

The Woodworker's "Bible"

only 15¢

- *144 PAGES OF BARGAINS AND HELPFUL INFORMATION*
- *1500 ITEMS AND IDEAS FOR THE WOODWORKER*

Whether you're a beginner or an advanced wood craftsman--this famous big, new book will show you how you can make hundreds of valuable items in wood. It's literally filled with step-by-step instructions, how-to-do-it information, dozens of time and money saving hints and ideas, plus all kinds of projects you can make for fun or profit--at real bargain prices you can afford.

Guide for Amateur and Expert

Offers the world's finest selection of imported and domestic woods. Illustrates 32 rare and fancy woods in color...43 veneer designs...multi-colored bandings, inlays, overlays...275 scroll patterns... all kinds of tools, machinery, cabinet hardware, ornaments, mouldings. All woods properly seasoned, kiln dried, correctly graded. Quick delivery --a board or a carload. Everything guaranteed. Thousands of others all over the world have sent for this famous book. Mail coupon and 15c today --you'll be glad you did.

MAIL THIS COUPON--TODAY!

CRAFTSMAN WOOD SERVICE CO.
2729 S. Mary Street, Dept. B1
CHICAGO 8, ILLINOIS

Please send me Hunt's BIG, NEW time and money saving Catalog No. 19 for Woodworkers. Enclosed is 15c.

Name_____

Address_____

City_____ Zone_____ State_____

Now you can
EASILY REMOVE RUST
from chrome and other metals

METAL TREAT is also an excellent rust preventive and metal pre-primer

Just rub on concentrated Metal Treat and unsightly, damaging rust comes right off automobile chrome, tools, outdoor furniture, machinery and other metal surfaces. And, before you paint any metal surface, prime it with diluted Metal Treat to prevent rust and make paint stick (12 oz. bottle makes full gallon). If your paint or hardware dealer doesn't have Metal Treat yet, send $1.00 (check or cash) to THE KLEAN-STRIP CO., 2364 S. Lauderdale, Memphis 6, Tenn.

METAL TREAT

A quality remover by the makers of KLEAN-STRIP

the ORIGINAL!

WHIZ SAW

The All Purpose Cutting Tool

Precision Made for Precision Work

Home craftsmen will find Whiz Saw useful for rough cutting jobs as well as precision work. ACCEPT NO SUBSTITUTE . . . the original WHIZ SAW is one of the most versatile cutting tools ever invented. It cuts with amazing speed wood, bone, plastic fibre, pressed wood, hard rubber, etc. up to 1" thicknesses . . . it's scientifically designed for cutting inside shapes without first boring a starting hole. Ideal for jig or band saw use when inserted in handy WHIZ SAW table.

Whiz Saw #2 has greater capacity, cuts up to 2" thickness, $130.00. Whirl Saw, a 4½" circular blade, cuts up to 1¾" thickness, $49.00.

If not available at your dealers, write to: The Forsberg Mfg. Co., Bridgeport, Conn. U.S.A.

WHIZ-SAW $5500 Table $18.95

7 saws in 1 RIP, CROSSCUT, KEYHOLE, COPING, SCROLL, BAND OR JIG

the ideal cutting tool for:
HOBBYISTS
ELECTRICIANS
CARPENTERS
PLUMBERS
SIGN-MAKERS
MAINTENANCE MEN

All-metal Whiz-Saw table may be secured with screws to wood bench or held in vise.

ANOTHER Forsberg PRODUCT
Makers of the Famous Whiz & Viking Tools

The Mounties Become Mechanics

[Continued from page 264]

frontier force, but a few concessions to drama remain. In the vicinity of the picturesque mountain resort of Banff, one of the most famous tourist spots in the world, the troopers on everyday duty still wear their scarlet tunics.

But whether in majestic red or humdrum brown, the Mounties rely upon scientific advance wherever they can—both in relentlessly pursuing the guilty and in parceling out mercy to the innocent.

The treasurer of a Canadian city was charged with embezzlement when a sudden flash fire burned all the money in his office. Officials suspected that he had cached the funds somewhere. The man had a good reputation and the Mounties believed the charge to be false.

Clear the Innocent

The crime-detection laboratory sifted through the ashes and created anew every piece of currency of large denomination that had been in the office at the time of the fire.

The man was acquitted.

The Mounties of 1953 are convinced that more criminal cases will be decided in modern laboratories than on the bleak and windswept expanse of the Barren Lands. The microscope is replacing the carbine, as the automobile has all but replaced the horse, among the tools of the vigilant troopers who in Canada's vast realm are assigned to "uphold the right." END

Papa's Pride and Joy

THE young mother stole to the door of the nursery and watched as her husband gazed down at their baby's crib. There was an expression of wonder and admiration on his face and she could hear him mutter: "I can't get over it! I just can't get over it!"

Deeply touched, she slipped to her mate's side and put her arms around him. "A penny for your thoughts, darling," she whispered.

Startled, he blurted: "Why for the life of me, I can't get over how I built that beautiful crib for only $10!"—*Lino-Lines.*

best white tape made

ONLY 98¢*

The new "Evans White-Tape" has everything you'll find in tapes costing over $1.50—plus.

- snow-white blade with bold, legible, jet-black numerals and graduations. Graduated in 32nds for first 6 inches.
- sturdy die-cast case heavily chrome-plated, calibrated for quick reading inside and outside measurements.
- blade ½" wide made of finest high carbon steel—tempered—Bonderized—enamelled—baked.
- blade replaceable in seconds—without tools—without even opening case. And Evans replacement blades cost far less.
- every "Evans White-Tape" is unconditionally guaranteed.
- exclusive Evans automatic brake gives smoother push-pull action with absolutely no "creeping" of tape into case.
- underside is white, too. Mark with ordinary pencil, remove mark with flick of thumb.
- unheard-of low price*: 10-ft. $1.49; 8-ft. $1.19; 6-ft. 98¢. Prices higher in far west and Canada.

Sold only through retailers.

Evans & CO Elizabeth, N. J., Montreal, Que.

Makers of Evans 6-ft. Folding Rule and Folding Yardsticks

ONE-MAN SAWMILL LOW AS $50.00 DOWN

Take BELSAW Portable Sawmill right to the trees—turn out valuable lumber for local yards—do "custom sawing" for neighbors. BELSAW lasts a lifetime. No crew needed. Power with old auto engine. Beginners get excellent results. Send postcard for FREE BOOK, "How To Make Lumber."

FREE BOOK

BELSAW MACHINERY CO
8464 Field Bldg. Kansas City*11, Mo.

FASTER THAN $100 ENGINEER INSTRUMENTS!

Packed in husky carrying case 12x11¾x3¼"

Regular 50 Feet $8.95

THE NEW, IMPROVED WATER LEVEL FOR SIMPLEST ONE-MAN OPERATION

Deluxe 75 Feet $12.95 Heavy Case

FOOTINGS FOUNDATIONS GRADINGS

Anything you need level LEVELALL does it

LEVELALL
81B Webster Street
Rockland, Mass.

Dealer inquiries invited

LEVELALL
81B Webster St., Rockland, Mass.

Mail me.....Levelall instruments at $8.95
Mail me .....DeLuxe Levelall at $12.95
you guarantee satisfaction or money back upon return of Levelall within ten days.

Name.....
Address.....
City.....Zone....State.....

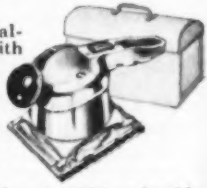
☐ Send C.O.D. I will pay postman full purchase price plus delivery charge on arrival.

☐ Full purchase price is enclosed. Send postpaid. (Postage prepaid on orders in U.S.A. only.)

SpeedWay SpeedTools

Build, repair, install, finish or refinish—at your convenience, at low cost. Powerful SpeedTools take the drudgery out of work, help you do "professional" quality work in a hurry.

No. 150 SpeedSander
An all-ball-bearing, orbital-motion, finishing sander with powerful 3450 r.p.m., A.C. induction motor and cast aluminum body. **$34.50**



150-K SpeedSander Kit
The Sander with Accessories including: deep contour pad, finishing plate, felts for free abrasives and wet rubbing, lamb's wool bonnet, 90 sheet abrasive covers, etc. in fitted steel carrying case. **$49.50**

No. 1000 SpeedSaw
¼ H.P. Universal Motor, cast aluminum housing, safety shut-off switch. Cuts all angles to 45°, any depth to 1⅛" **$29.95**

SpeedDrills
(for metal or wood)
Extra power, high speed, electric drill with cast aluminum cases, and geared chucks.

No. 200-J ¼" SpeedDrill $19.50

No. 400 ½" SpeedDrill $39.50

also other sizes, types.

Drill Kits
Several fast selling kits. Painters and Householders Kit (illustrated) is typical. It has: ¼" Hornet Drill, Abrasive Discs and rubber backer plate, grinding wheel, wire brush, buff, etc. In attractive display carton. **$19.95**

Write for catalog

SpeedWay MANUFACTURING CO.
1864 So. 52nd Ave. • Cicero 50, Illinois

CEILINGS CRACKED? NEED MORE ROOM?

WANT TO *Modernize* YOUR HOME?

Do the job easily, quickly at low cost with

UPSON PANELS

or CEILING TILE

For Cracked Ceilings: No messy replastering! No ordeal of housecleaning! Apply **Upson Kuver-Krak Panels** on furring strips right over old plaster. Unique floating fasteners eliminate face nailing. Waterproofed and washable, **Upson Ceiling Tiles** are 12-in. sq., applied with matching color pins! Both give you a beautiful new crackproof ceiling in a matter of hours!

For Modernization: Upson Panels saw like wood. Take screws, nails, fixtures. Available in a variety of widths, thicknesses and surfaces—at your lumber dealers! **Strong-Bilt Panels** for new construction, ¼" panels for lighter work. Pebbled or smooth surfaces—plus new **Striated Panels** for a modern look! Trademarked for uses.

Upson Floating Fastener

Closet under stairs

Beautify your fireplace

Extra closet in bedroom

Your own bar

THE UPSON COMPANY
5121 Upson Point, Lockport, N. Y.

I enclose 10c for 32 page Idea Booklet. Include Instruction Sheet for applying Upson Ceilings and working drawings for Storage Wall FREE.

Name_____
Street_____
City_____
State_____

50 miles per hour!
75 miles per gallon!
3/4c per mile total operating cost!

The speedy, powerful Cushman EAGLE takes you anywhere at amazing low cost. Its low purchase price is matched by economical operating costs (only 3/4c per mile!). Hundreds of uses—drive it to work, school, vacation, errands, ball games. No parking or traffic problems. It's king of the road in both town and country!

Write today for free illustrated literature. See your nearest Cushman dealer for a FREE demonstration.

CUSHMAN MOTOR WORKS, INC.
Dept. PS-1, 900 No. 21st St., Lincoln, Nebraska

WAR SURPLUS

FREE CATALOG

Bargains in War Surplus. Welders, hydraulics, generators, motors, wire, cylinders, instruments, meters, gauges, pumps, drills, winches, books, many other items. All merchandise guaranteed. Send for LeJay Surplus Bargain Book today.

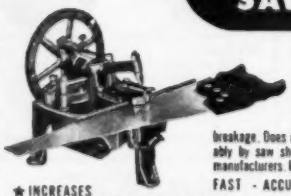
LE JAY MANUFACTURING CO., Minneapolis 8, Minn.
928—1st Ave. So., 823 Seattle 4, Wash.

HOBBYISTS! SHOPMEN! *Special* ONLY $54.50

PALMGREN "HOBB-E" Rotary, Index, Milling Table
Ideal for Model Parts or Shop Work

Mill-Grind-Drill-Index-Rout curved or straight-Rabbet and Mortise on drill press or lathe. 8" Table, 4" Cross Feed, 360° Rotation, Accurately Graduated. Bolts to table. Order NOW! SAVE $100. Only **$54.50.** Less Rotary Feed **$39.75.** Write for "**HOBB-E**" Tool Circular.
CHICAGO TOOL and ENGINEERING CO.
8398 South Chicago Ave. Chicago 17, Ill.

BeMaCo Dependable
AUTOMATIC SAW SET



Sets 400 teeth per minute on hand or band saws 4½ to 16 point. Hammer and anvil action sets teeth accurately and uniformly . . . No tooth breakage. Does a perfect job. Used profitably by saw shops everywhere and saw manufacturers. Every machine guaranteed!

FAST - ACCURATE - DEPENDABLE

★ INCREASES PROFITS **BEAVER MFG. CO.**
800 S. ISIS AVE. • INGLEWOOD, CALIF.

FREE CATALOG OF GOV'T SURPLUS

Complete Power Tool Accessory Set

100 pieces 4.98
Post & Hand. 50c

for all 1/4 capacity Electric Drills and Motor Chucks. Kit Contains: Grinding Wheels, Drills, Reamer, Mounted Stones, Polishing Compound, Buff, Arbors, Rotary File, Steel Cutters, Circular Saws, Cutoff Wheels, End Wire Brushes, Polishing Wheels, Honing Stones, Sanding Cloth and Paper, Wire Wheels, Sanding Discs, and other useful items.

All 1/4" Shanks 30 Piece Accessory Set
Kit contains Grinding Wheels, High Speed Rotary Files, Taper Pin Reamers, Felt Polishing Wheel, Wire Brushes, High Speed 1/4" Drill Bit, High Speed Countersink....all on 1/4" shanks.
REGULARLY 28.00
Post. & Hand. 50c **9.98**

PENCIL SHAPED true tempered TOOLS

ideally suited for working in almost every medium Metal, Plastic, Wood, Leather, Clay, Stone, etc. Our set of 8 NEW GOV'T SURPLUS DENTAL INSTRUMENTS worth almost $20.00, yours for only **1.98**
Post & Hand 25c

100 ASSORTED 1/8" & 3/32" SHANKS MOUNTED STONES AND STEEL CUTTERS...

USUALLY $20.00

Standard Length Shanks
ALL NEW
Now $9.98
Post. & Hand. 50c

BARGAIN MIXES—All New Merchandise		Add Post. & Hand.
Set of 12 New Files up to 14"	$2.99	50¢
10 ass't Taps up to 5/8"	1.98	25¢
15 ass't Drills up to 5/16"	98¢	20¢
6 ass't Round Dies 11/16" to 2" outside dia.	1.98	25¢
5 ass't Taper Pin Reamers 1/4" shanks	1.98	25¢
$10.00 list value of Abrasive cloths	98¢	25¢

Dental Specialty & Sales Co., Dept. PS5 P.O. Box 692, Great Neck, N.Y.

New Window Paint Roller

Keeps Paint Off Glass!

Now paint your window sash easily, quickly, neatly—with the Clever New Window Paint Roller. Just fill paint reservoir and roll paint on sash right up to the glass, smoothly, cleanly, without getting any paint on the glass. Dozens of other uses—for striping, outlining panels, etc. Use indoors or out. Order Today!

Only **$1.19**

SEND NO MONEY! Mail Order. Pay postman only $1.19 plus C.O.D. and postage. Or send $1.19 plus 10c for postage and handling. Money-Back Guarantee. Order NOW!

Dept. E-188 STRADER PRODUCTS CO. 259 Strader Ave. Cincinnati 26, Ohio

Increase Compression As Much As 126% with Fisher's Compression SEAL

• Stop Burning Oil & Check Piston Slap

Amazing new discovery, Fisher's Compression SEAL, has been tested and approved by a leading independent laboratory. Guaranteed to increase your car's compression, reduce oil consumption and check piston slap **or your money back!** Easy to apply. Simply squeeze a small amount into each cylinder bore. This self-expanding compound then **seals** the excessive clearance between piston and cylinder wall, thus allowing you to enjoy former operating efficiency. Lasts 10,000 miles. $25,000 insurance policy assures you it cannot harm the finest engine. Only $3.95 postpaid. Acts while you drive, costly ring or rebore jobs may not be necessary. Free folder. Send cash, check or M.O. **Dealers,** a postcard will send our representative to your door.

$3.95 ppd.

ADVANCED ENGINEERING BOX 7013, DEPT. PS-1 LOS ANGELES 37, CALIF.

Make $3.00 AN HOUR AND MORE

IN FULL OR SPARE TIME! SHARPENING LAWN MOWERS IN YOUR GARAGE or BASEMENT!

READ WHAT THIS CUSTOMER says:

"I am buying a home and my Universal is going to be a tremendous help paying for it." Another Universal owner says, "I have taken in last season more than $3500.00." Another "During this year I sharpened 602 mowers." Spare time or full time, you too, can make big money in your own business and be your own boss. No other lawn mower sharpener has the advantages that Universal offers. That's why owners tell glowing success stories in this profitable business. Write today for full details of our proved success plan.

ONLY ON THE UNIVERSAL LAWN MOWER GRINDER

can the inside face and edge of the stationary blade, and all reel blades, be ground to proper clearance

ALL IN ONE SET-UP

WITHOUT REMOVING ANY BLADE FROM THE MOWER

Men with 20 and 30 years of experience have tried them all and acclaim the UNIVERSAL Grinder best.

OUR PLAN GIVES ALL THE PROVED SHORT-CUTS TO SUCCESS

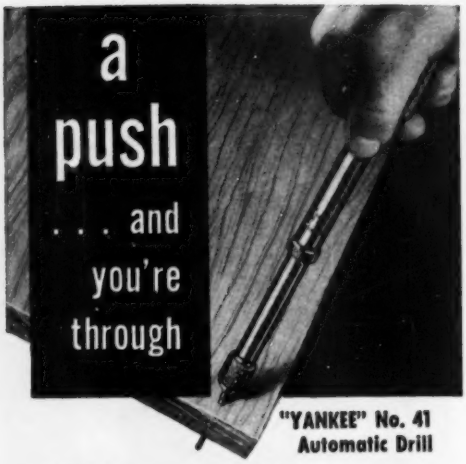
SHOWS YOU HOW STEP BY STEP
From the successful experience of hundreds of our customers, we have evolved a basic plan, simple and easy to follow, which leads you to quick success in either spare or full time.

ROGERS MFG. CO.
DEPT. P-13, LINDSEY, OHIO

SEND THIS COUPON *NOW*

ROGERS MFG. CO., Dept. P-13, Lindsey, Ohio
Please send me full details about the profit possibilities of Lawn Mower Sharpening.

NAME _____
ADDRESS _____
CITY _____ STATE _____



"YANKEE" No. 41 Automatic Drill

Drilling is an easy, one-hand job with the "Yankee" No. 41 Automatic Drill. Just push the handle and the drill point spins in. Return action spring clears chips. Magazine handle contains eight drill points, 1/16" x 11/64". See it at your Stanley dealer's today. North Bros. Mfg. Co., Dept. 5, 215 West Lehigh Ave., Philadelphia 33, Pa.

NORTH BROS. MFG. CO.
Philadelphia 33, Pa.

"YANKEE" TOOLS NOW PART OF STANLEY
THE TOOL BOX OF THE WORLD

WOODS

get this *BIG Catalog* without cost!

Loaded with how-to-do it articles on wood-finishing, veneering, making inlay pictures and cabinets. Contains 83 distinct inlay designs and borders, plus a wood identification panel of 60 different varieties. All shown in full natural color suitable for framing.

A MULTITUDE OF MATERIALS
Lowest Prices On

Veneers	Period Furniture Hardware
Inlays	Modern Picture Frame Molding
Lumber	Upholstery
Plywood	Hand and Electric Tools
Plans	Finishing Materials
Supplies	Decorative Metals
Plastics	Leather

Albert Constantine & Son, Inc.
Dept. PS-8, 797 E. 135th St., N.Y. 54
ESTABLISHED SINCE 1812

● VISIT US at our N.Y. Plant. Demonstrations every Saturday on making inlaid pictures, wood finishing and other crafts. Everyone invited.

SEND THIS COUPON!

Albert Constantine & Son, Inc., Dept. PS-8
797 E. 135th St., New York 54, N.Y.
Enclosed find 50c (refunded on 1st order) for your copy of "Manual For Craftsmen" No. 52.
Name_____
Address_____
City_____ State_____

Build Your Own Drill Press

vises, clamps, hand tools . . .

Yes, you can have the satisfaction of saying "I made it myself"—and save money, too! I now offer these tested plans to workshop hobbyists after successful applications in over 2500 industrial arts and vocational schools in 47 states! Plans are fully dimensioned and properly engineered to produce high-grade machine and hand tools with a minimum of power equipment! *Simply send 50¢ in stamps or coin for big 36-page book* of 30 working drawings on a variety of home workshop equipment that you can build yourself. This book also lists high-quality castings and other basic parts which we can supply for these projects at attractive prices. Money back guarantee. For both the beginner and experienced man. Write: Clarence Struck, *Gen. Mgr.*,
CASTING SPECIALTIES, 1925G N. 49, Milwaukee 8, Wis.

Print Your Own

Cards, Stationery, Advertising, labels, circulars, photo and movie titles, church work, tags, etc. Save money. Sold direct from factory only. Raised printing like engraving, too. **Print for Others, Good Profit.** Have a home print shop. Easy rules supplied. Pays for itself in a short time. Write for free catalog of outfits and all details.
KELSEY PRESSES, N-33, Meriden, Conn.

VARIABLE SPEED HYDRAULIC POWER TRANSMISSION

It has Infinite Speeds 0 to 550 Reverse Automatic Overload Protection; Adjustable Torque up to 180 inch pounds. 5/8" Input and Output Shafts. It will handle 1/2 to 1 1/2 H.P. Motor. Case measures 7 1/2" long 7" high 6 1/2" wide. VALUE OVER $300. Shipping Wt. 25#. On C.O.D. Orders we require a 10% Deposit.

only **$54.50** Fob. Chicago

DIRZIUS MACHINE SHOP "V" 1423-25 So. 52nd Ave., Cicero 50, Ill.

ELECTRIC WELDER

AC or DC 110 Volts

The "Little Marvel" all-metal welder, 5-year written guarantee, and flame torch welds 1/8" metal — brazes up to 1/2" or money back. Also solders and cuts. $10.40 plus 50c postage. "Little Marvel" without flame torch $6.45. On C.O.D. postage extra. 1/4" Heavy Duty transformer welder $18.95 F.O.B. All welders complete with everything — ready to plug in.

$6.45 Complete

ESSAY MFG. CO., Dept. 47, Quincy 69, Mass.

UP TO 2000 POWER!
MICROSCOPES . . . OPTICS

FROM $14.95 OPTICS FROM $1.00

UNHEARD OF VALUES IN PROFESSIONAL QUALITY OPTICAL INSTRUMENTS . . .

These fine instruments are used throughout the U.S. in laboratories, schools, colleges and physicians' offices

SEND FOR FREE 32 PAGE CATALOG

World's greatest values in hobbyists, students, and professional research microscopes, complete accessories, mechanical stages, eyepieces, prepared slides, dissecting microscopes, ore, mineral, gem microscopes, binoculars, telescopes, magnifying glasses of all types. Each item a bargain . . . money-back guarantee.

THE AKRON 4400 SUNSET BLVD. LOS ANGELES 27, CALIF. 1-5

IDEAL FOR HOME CRAFTSMEN...

PRECISION SHEET METAL WORK

with TRU-CUT® SNIPS

Proved in aircraft plants to be best for cutting metal accurately to guide lines of any simple or complex pattern. Now available for home workshops.

- exclusive tension washer maintains uniform tension on cutting edge for precision accuracy.
- lightweight, powerful, sturdy
- cuts 20 gauge sheet metal
- exclusive no-pinch handles
- cuts perfect circles left or right
- cuts square points left or right
- cuts straight work faster, easier
- stays sharp longer
- guaranteed

Exclusive territories open for representation

$4.95 Post Paid

At your Hardware Store or

ORDER DIRECT

SINCE 1885

J. CARTWRIGHT & SON

MALAGA, CALIFORNIA

NEW, IMPROVED CALCULATOR FOR WOODWORKERS only 25¢

Instantly gives information on lumber, nails, concrete mixes, painting materials, etc. Convenient, simple to read. Just set dial for nail specifications, to convert linear to board feet, find bit sizes for screws, compare characteristics of woods. 6" diameter heavily varnished cardboard. Send 25c, no stamps, please to Greenlee Tool Co., 2121 Columbia Avenue, Rockford, Illinois.

CHOOSE FROM PROFESSIONAL QUALITY

WESTCRAFT TOOLS

AT **WESTERN AUTO**

USE KESTER METAL MENDER

(GENUINE TIN LEAD SOLDER)

For all Metal Repairs

FREE: "Soldering Simplified." 16 page illustrated booklet. Get your copy now.

Kester Solder Company

4254 Wrightwood Ave.
Chicago 39, Illinois

GET THE WORLD'S LEADING

TV & RADIO CATALOG

FREE

236 VALUE-PACKED PAGES

1953 ALLIED BUYING GUIDE

Save on Everything in TV & Radio!

Everything for Experimenters, Builders, Amateurs, Servicemen, Engineers and Soundmen

Get ALLIED's big 236-page Catalog featuring the world's largest selections of latest top-quality electronic equipment at lowest, money-saving prices. See the newest in custom TV chassis, TV accessories, FM and AM radios, Amateur Equipment, High-Fidelity sound, P.A. systems, recorders, test instruments, builders' kits—plus thousands of parts, tubes, tools and books. Get more for your money—send today for your FREE 1953 ALLIED Catalog!

FREE CATALOG — SEND FOR IT TODAY

ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-AA-3
833 W. Jackson Blvd., Chicago 7, Illinois

☐ Rush FREE 1953 ALLIED 236-Page Catalog

Name_____

Address_____

City_____ Zone____ State____

UTICA

FORGES FOR STRENGTH

UTICA'S NEW RIB-JOINT® PLIERS

#507-10"

Greater strength exactly where you need it—at the joint—because ribs are *forged*. No machining to weaken the steel's fibre structure.

CROSS SECTION VIEW SHOWING STEEL FIBRE STRUCTURE OF FORGED RIBS

STRONG BECAUSE STEEL FIBRE STRUCTURE IS COMPRESSED AND FORCED TO FOLLOW CONTOUR OF RIBS

LOOK FOR THE NAME "UTICA" ON THE TOOL

U TI CA®

DROP FORGE AND TOOL CORPORATION

UTICA 4, NEW YORK

IT PAYS TO BUY QUALITY TOOLS

and the world's best tools are made in U.S.A.

Getting The Most Out of Your BAND SAW or SCROLL SAW

This fine book—"Getting the Most Out of Your Band Saw and Scroll Saw"—is packed with the "know-how" of Delta experts. Dozens of practical tips on how to make your tools *last longer*, stay accurate. Only 25c postpaid—saves you dollars a-plenty. Send 25c in coin (no stamps) to

DELTA POWER TOOL DIVISION, ROCKWELL MFG. CO.

504 N. Lexington Ave. Pittsburgh 8, Pa.

ONLY $65.00 FREIGHT PREPAID

WE SEND YOU A LATHE—NOT LITERATURE

To Prove by Trial the Biggest Lathe Value Ever Offered

The finest quality, 16"x5' capacity lathe ever offered at this low price. Nothing like it available at any store. Let our money-back guarantee prove it to you. We'll send you a brand new lathe freight paid. We let you see our lathe—feel it—actually machine with it while you make up your mind to keep it or shove it back in the crate and return it freight collect. And what a lathe it is! Sturdily built with bed ways machined with double V to 60°. The compound swivels 360° on a center pilot and is locked with 2 T-slot bolts. Lathe may be operated with a ½ h.p., 1750 r.p.m. motor. Bed length 26" with cutting range 18½", 6" swing. Sent complete with hand undercutter and lever hand feed, 2 female centers, 2 male centers, driving dog, arbor attachment and grinding wheel, V-belt, 2 power feed belts, tool bit, face plate and dog. The lathe is precision and sturdily built to handle every metal or wood job within its dimension cap. Ideal for factories, hobby and home workshops or as armature lathe for garages. Full price freight paid only **$65.00.** 10 day free home trial—you must be satisfied or return it at our expense for your money back in full. Immediate delivery while they last. Send check or money order for **$65.00** to:

HAMILTON PRODUCTS, INC., 12416 Euclid Ave., Cleveland 6, Ohio

NEW INVISIBLE WOOD FASTENERS

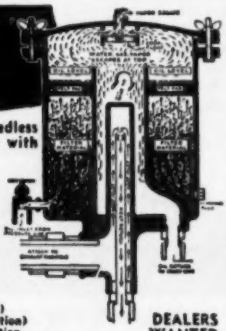
Especially Designed for Countersinking

New type "CHEVRONS," ⅜" depth for hard and soft woods of thicknesses up to 2½". Draws wood together. Just hammer in and countersink instantly with Chevrons Countersink. Illustration shows slots filled with putty. Prevents rust. At your dealer or send only $1.00 for 100 "Chevrons" postpaid. Add 35c for countersinking tool. Money back if not delighted.

E. B. PACKARD CO., Inc., Dept. PS1
139 CEDAR ST., NEW YORK 6, N. Y.

STOP CHANGING MOTOR OIL!

End this needless expense forever with



RECLAIMO Today's Most Advanced OIL RE-REFINING filter FOR CARS, TRUCKS, TRACTORS

Continuously cleans and RE-FINES motor oil as you drive by utilizing motor heat—keeps oil in high grade lubricating condition at all times.

"RECLAIMO"
- REMOVES SOLIDS (by filtration)
- REMOVES WATER (by distillation)
- PREVENTS Excess Fuel Dilution
- PREVENTS Acid and Sludge Formation
- ADDS Thousands of Miles to Engine Life

MAINTAINS Stable Viscosity **ELIMINATES** All Oil Changes

Send for Free Vital 32-page book "OIL FACTS" (with bona-fide $1,000.00 offer on page 30). Gives you complete "Reclaimo" story and details of our extraordinary 90 DAY NO-RISK TRIAL OFFER.

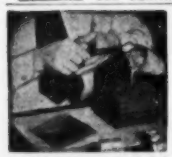
DEALERS WANTED

U.S. BUREAU OF STANDARDS, Bul. 86 States, "Oil does not wear out—mechanically."

RECLAIMO MFG. CO., INC.

5083 Elston Avenue Dept. P-1 Chicago 30, Illinois

Wm. Schwalge, U.S. Pats. 1757223, 1834654, 2068473.



BRONZE FOUNDRY

Schools and Home Workshops

Make your own castings of aluminum, copper, bronze, silver. Foundry sets are available in three sizes including 2400 Deg. F. blast Furnaces, $22.50; $29.50; and $42.00. f.o.b. Kansas City. Free Circular.

KANSAS CITY SPECIALTIES CO. P. O. Box 6022, Dept. S-1 KANSAS CITY, MO.

WELD-BRAZE CUT-SOLDER

4 Ways to Handle 1001 Repairs Around Home-Garage-Garden

Complete welder with Twin Carbon Arc Torch and all operating accessories to do all types of metalcraft work. Easy instructions for work on iron, steel, bronze, brass and aluminum. Plugs into any properly wired AC or DC line. Low cost pays for itself in money saved and earned. A wonderful practical Gift of a lifetime. Order now!

only **$14.75** f.o.b factory

Larger Models Available on request.

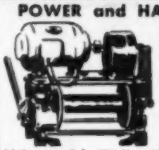
FOUR WAY WELDER CO.
2326 S. Michigan Ave.
Chicago 16, Ill. Dept. F3-AD

4 *way welder*

Years on a money back 10 DAY TRIAL

BUY from C&H - you'll save and be sure!

POWER and HAND WINCHES



For—BOATS, TRUCKS, FARMERS, LOGGERS, CONTRACTORS, ETC.

Hand winch, 3-1 ratio, 600 lb. pull, drum has 1⅝" spool, 6" flange, takes 75' of 3/16" cable, stop locking pawl, wgt. 26 lbs. **$16.95**

Ball bearing Hand winch, low ratio 1-1, high ratio 3-1, 600 lb. pull **$29.50**

Same as above with bronze worm gear, 12 to 1 ratio and handbrake **$39.50**

½ HP electric ball bearing model; compact gear box, 12 rpm drum speed **$135.00**

¾ HP, same as above, 3" drum **$165.00**

Heavy duty, 10-1 ratio, double drum model with jaw-type clutch, wgt. 280 lbs. **$49.95**

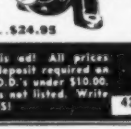
CABLE, ¼" preformed stainless steel aircraft, 100 ft. or less ..... **17¢/ft.**

Over 100 ft. ..... **15¢/ft.**

BUILD YOUR OWN INCLINE OR DUMB WAITER ELEVATOR

Get all the convenience of a dumb waiter elevator for store, shop, restaurant and home—or the convenience of an incline elevator on steep lake shores, hills, ravines, etc. at lowest cost. We furnish complete parts. Steel Car—Guide Rails—Worm Gear—Limit Switches—Electrical Control—Steel Cable. SEND 25c for completely diagrammed instructions with list of parts, kits and prices.

ALARM HORNS • SIRENS



Motor driven (not a vibrator). Heavy duty with great power and long life. Adjustable for high, medium or low tone. 110 v. AC current. Weather proof. For alarm or signal horn on boats, school yards, factories, air raid siren, etc. Lists at $47. Our price NEW **$24.95**

BOOSTER FANS fit any 8", 9", 10" furnace pipe. 1500 rpm motor with 6" cord, mounting frame, 6" blade. Motor 110 volt 60 cycle 1550 rpm. Easy to install. Silent operation. Warm those rooms with long runs. List $17.95. Our price **$6.95**

High Volume BLOWERS

Top performance for forced draft, ventilating, exhausting, cooling and drying. 110v. AC.

75 cu. ft. per min. **$10.95**
150 cu. ft. per min. **13.95**
300 cu. ft. per min. **17.95**
500 cu. ft. per min. **36.00**

CLUTCHES

For Motor scooters, motor bikes, etc. Centrifugal action enables electric motors or small gas engines to handle heavy starting loads. 3" A belt pulley. NEW ⅝" bore **$9.95**; ¾" bore **$10.95**; 1" bore **$11.95**

CENTRIFUGAL Ball Throw-out CLUTCH. A or B belt pulley. ¾" bore **$9.00**; 1" bore **$11.00**

FRICTION DISC CLUTCH

Twin disc throw-out type. Ideal for power link with gas engines and electric motors from ¾ to 15 hp. 1-7/16" shaft bore—can be bushed to suit. Overall length 4", 5½" plate with 6 mounting holes. Lists at $44. Used like new **$15.95**

ELECTRIC HOT WATER HEATER

Heat water faster, easier with this immersion unit. 115- v. AC—1250 watt Westinghouse or Chromolox element. Manual unit, $42 value, $6.95; thermostatic Fenwall control $3.95. Element with Fenwall thermostat, $8.95. 10 gal. steel tanks 12 x 21"—$9.95; 8 x 42"—$11.95. 18' cord 2 x 12/2 or 3 conductor with plug **$2.25**

RUBBER HOSE

Long wearing GOODRICH 2 ply 2" I.D., 25 ft. lengths worth $25. Only **$4.99**; 3 lengths for **$12.00**.

SAVE OVER 50%

ON THESE BRAND NEW WAR SURPLUS POWER UNITS

BE PREPARED
for any emergency!

300 WATT 110-220 volt AC, 60 cycle light plant powered by 1 HP gas engine, direct drive, mounted base, wgt. 40 lbs. Ideal for campers, P.A. systems, house trailers, etc. Equipped with handle for easy carrying **$99.00**

750-1000 WATT 110 volt AC, powered by Briggs & Stratton gas engine **$169.00**

1000-1200 WATT 110 volt AC **$194.00**

2000-2500 WATT 110 volt AC, 60 cycle, slow speed generator, 5.10 HP Briggs & Stratton gas engine, NEW **$294.50**

To make 110-220 add $40, for transformer.

2500-3000 WATT 110 volt AC, 60 cycle, Leland generator—runs at slow speed (1800 r.p.m.) for longer life, 8.25 HP Briggs & Stratton gas engine. You can rely on this plant for all average home needs—freezer, stoker, pump, hot plate, radio, etc. —and overloads from starting motors. Reconditioned and fully guaranteed ..... **$295.00**, NEW **$345.00**

Plants same as above, built in 1951, with tools and spare parts. Lists at $790. Our price **$426.**
To make 110-220 add $48 for transformer.

3000 WATT 110-220 volt with push button starter. Starter battery is automatically charged by plant. Gas engine same as in plant above **$465.00**

5000 WATT, 120 volt, 60 cycle AC, Hercules 4 cyl. gas engine, Hobart generator, completely automatic, radio and TV filtered, power cable plug, exhaust pipe and manual. Lists at $1,800. Our price **$795.** Extra parts and tools $25. 150' reel 2-wire #6 rubber cable with connectors $90. 150' reel 3-wire remote control cable & switch $25. Plant complete with parts & 2 reels of cable **$895.** To make plant 110-220 V., add $75 for transformer.

7500 WATT 110 v. AC, 4 cyl. gas engine NEW ..... **$995.**

10,000 WATT 110-220 v. AC. Reconditioned ... **$1195.** NEW ..... **$1495.**

25,000 WATT 220 v. AC, 3 phase or 110-220 v. single phase. Reconditioned **$1995.** New **$2495.**

35,000 WATT 110-220 v. AC, Diesel. Rebuilt **$2995**

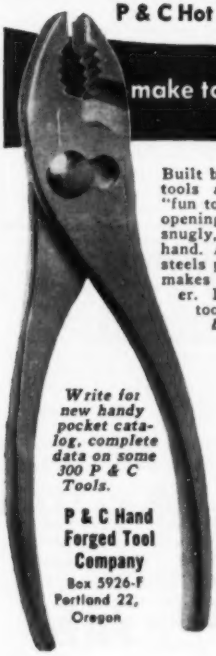
50,000 WATT 240 v. AC, 3 phase Diesel. NEW ..... **$5900.**

ORDER DIRECT from this ad! All prices F.O.B. Milwaukee. 25% deposit required on all C.O.D. orders. No C.O.D.'s under $10.00. Many other bargain items not listed. Write for our FREE CIRCULARS!

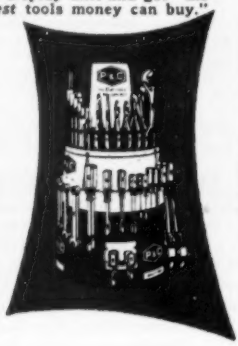
C&H ELECTRIC MACHINE Co. Inc.
438n W. Juneau Ave., Milwaukee 3, Wisconsin

P & C Hot Forged Tools

make tough jobs **EASY!**



Built by master craftsmen, P & C tools are "muscle saving" and "fun to use." They get into small openings, fit nuts and screws snugly, balance perfectly in the hand. And special analysis alloy steels plus scientific heat treating makes them stay on the job longer. Look for the P & C rotary tool display unit and get "the *best* tools money can buy."



Write for new handy pocket catalog, complete data on some 300 P & C Tools.

P & C Hand Forged Tool Company
Box 5926-F
Portland 22, Oregon

---

send for FREE CATALOG

America's Foremost
money-making
MECHANICS' TOOLS

It's easy to own the same "pay-off" tools used and endorsed by America's top-earning mechanics throughout the automotive, aviation and industrial fields! Snap-on tools help you handle every repair job faster, easier, better. And they LAST . . . pay for themselves over and over again! Start building your own tool set now with basic Snap-on units—add others any time. Genuine Snap-on tools are never sold in stores—direct to users only. Mail coupon for free catalog.

Snap-on Tools
THE CHOICE OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION
8060-A 28th Ave., Kenosha, Wisconsin
Send me free catalog of Snap-on tools.

Name _____
Address _____
City _____ Zone _____ State _____

WAR SURPLUS AND OTHER BARGAINS SAVE UP TO 90%

PUROLATOR OIL FILTERS

The perfect filter to keep motor oil or hyd. fluid clean at all times. Permanent type, No. G159J-32. Protect your pump, engine, midget racer or boat with this unit. To clean element, just turn handle. Inlet and outlet ports take pipe or straight threads up to 3/8" male pipe. Accommodates 7/8 GPM at 30 PSI. Mtg. brackets. Wt. 4 lbs. A $15 value. **NEW** to you, with 2 **FREE** male reducer connectors for only **$3.95.**

BERNZ-O-MATIC TORCH

Terrific for mechanics or hobbyists, for heating, burning, soldering or brazing. Compact, versatile torch for electricians, plumbers, painters, auto mechanics, dental technicians, jewelers, neon glass formers, plastic workers and radio repair men. Burns for 10 continuous hours. Replaceable fuel cylinder. No moving parts to get out of order. Burns in any position with non-varying flame of approx. temp. of 3660°. No hose connections to get in way. Always ready for use! 2½" dia. 10" long. Absolutely safe, ICC approved. Wt. 2 lbs. **NEW.** An amazing value **$6.95.** Extra fuel cylinders **$1.95.**

"HELIOS" ORIGINAL TOOLMAKERS VERNIER CALIPERS

ULTRA PRECISION—Imported for the really critical mechanic who must have the best. Recommended and used by experimental and research machinists at Lockheed, Douglas, Bendix, GM, RCA, GE. ALL NEW and at low, low prices . . . but quantity is limited! Model 51-Genuine Helios. Hardened lapped precision surfaces. 1/1000" and 1/10 mm graduations. Has handy slide roll and thumb lock. Quick accurate depth. A $35 value, it's yours complete with leather carrying case for just **$8.95.**
Model 64-Helios 8". Glass hardened lapped jaws. Inside, outside measurements. 1/128" and 1/1000" verniers. Thumb guide and lock screw. A $45 value at the amazing price of **$7.50.**
Model 65-Helios 8". Glass hardened lapped jaws. Inside, outside measurements. Thumb guide and lock screw. Valued at $50, on sale while they last, for **$8.50.**
Model 76-Helios 8" Depth Gauge. Graduations 1/1000". Glass hardened. It's worth every bit of $25, yours now from Airborne for **$6.50.**

MICROMETERS

Chrome plated, precision engineered, carefully tooled to give long life. All new 0-1" capacity—$2.25 ea 1-2" capacity—$3.50.

HYDRAULIC HAND PUMP

Handle operated. Operating pressure 1500 PSI. Telescope extension handle for greater leverage. **NEW.** A $75 value. **Now only $9.95.**

Send 25c for 1952 catalog. Bargains for everyone. Check, Money Order or Cash. 25% deposit on C.O.D. orders. Prices F.O.B. Culver City, Calif., unless otherwise stated.

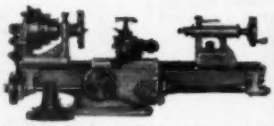
AIRBORNE SALES CO. INC., Dept. PS 153 8501 Stellar Dr. Culver City, Calif.

KING MIDGET

WORLD'S LOWEST PRICED 2 PASSENGER AUTO

JUST OUT—NEW CONVERTIBLE!
Operate it for 25c per week. Amazing performance. Surprising comfort. All steel construction. Ready to run or assemble it yourself with our bolt together parts. Rider Agents wanted, earn your car Free. Send 25c for detailed literature or $1 (refunded first order) for actual assembly book and service manual filled with photos, drawings, specifications, etc.

MIDGET MOTORS MFG. CO., ATHENS, OHIO

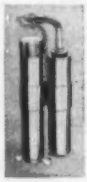


BUILD YOUR OWN MACHINE TOOLS

CASTINGS-DRAWINGS

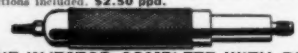
Catalog with complete construction drawings of this 8 inch Modelmaker screw cutting lathe with milling, grinding and hand shaper attachments, 25 cents postpaid, or send one dollar for drawings of three lathes, three milling machines and six inch crank shaper. Refund on castings order.

POOTATUCK CORPORATION, 104 Sammis Pl., Stratford, Conn.



NEW . . LOW PRICE Alcohol Blow Torch

One filling throws an 1800° flame a full hour. No priming or pumping, just fill with denatured alcohol and light. Nickel plated on brass. Safe and convenient. Complete instructions included. **$2.50 ppd.**



GLUE INJECTOR COMPLETE WITH DRILL

Drill in handle makes a tiny hole to heart of joint—plunger forces glue through hollow tip and hole into and around joint under great pressure. Mends furniture and toys quickly without disassembly. Model Worker's dream. Satisfaction guaranteed. Sorry, no COD's. **ppd. $1.65**

Artcraft Products Co., Box 8768, Cleveland 22, Ohio

SUPER DRILL GRINDER

Sharpens round shank drills from 3/32" to ½" in diameter, up to 6" long. Grinds old drills like new in 4 different point angles, using hand or power grinding wheels. Money-back guarantee, only **$2.95**

At Dealers or Postpaid

A.D. McBURNEY 317 E. 4th St., Dept. S-25 Los Angeles 13, California

Best way to REMOVE Paint and other finishes

WONDER-PASTE

Apply with a paint brush. Strip with a putty knife.

Stays put and workable, even on upright surfaces. Penetrates toughest finishes. Over 3 million cans sold. It must be good . . . At paint and hardware stores.

Write for leaflet and advice on removing problems.

Wilson-Imperial Company, 121 Chestnut Street, Newark 5, N. J.

MAGNETS 225 lb. PULL

GENUINE ALNICO—NEVER WEAKENS

AMAZING, PERMANENT MAGNETS—WILL NOT WEAKEN! NON-ELECTRIC
Retrieve guns, tackle, tools and other steel items from lake, river, plating tanks, drains or other hard-to-reach spots. Recover drills, taps, etc. from sweepings. Clear alley of harmful tacks, nails. Many other uses. Pays for itself quickly. GUARANTEED. Try any magnet one week. Money refunded if you are not well pleased.
No. S-725 (Weighs 54 oz.) Has pull of 225 lbs. on steel block **$15.00**
No. S-675 (Weighs 49 oz.) Has pull of 175 lbs. on steel block **$10.50**
No. S-650 (Weighs 41 oz.) Has pull of 150 lbs. on steel block **$ 8.50**
No. S- 30 Hobbyist assortment of six small magnets . . . . . **$ 1.50**
Send Money Order or check. We pay postage. No C.O.D.'s.

MIAMI MAGNET COMPANY, 3240 N.W. 27th Ave., Miami 42, Fla.

LEARN WELDING TO MAKE AND SAVE MONEY

Complete Outfit and How-To-Do-It. Everything Needed to Get in Business.

FASCINATING HOBBY...PROFITABLE BUSINESS

This is the time to cash in on big profits to be made doing welding for yourself or others, making valuable items of metal to use or sell. No experience or expensive equipment needed to get started in a profitable business of your own, full or spare time. Write for full details. **FREE**

DYNAMIC WELDER COMPANY 15 E. 23rd Street Dept. D3-AD Chicago 16, Illinois

4 TOOLS IN 1

The Complete METAL WORK SHOP FOR HOME AND PLANT

Patent No. 2053309

IT FORMS SHEARS PUNCHES RIVETS

INTRODUCTORY PRICE Only $6.95 DELIVERED

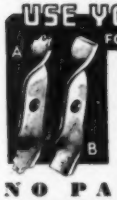
BENCH TOOL that FORMS, SHEARS, PUNCHES, RIVETS—one small compact tool that is a complete metal workshop. Bending and forming dies make smooth sharp bends in either bar or rod stock. Hardened steel shearing jaws shears metals cleanly up to 1/4" thickness. An efficient punch press complete with 1/8", 3/16" and 1/4" punches. Rivets easily with punch press and rivet dies. Check must accompany order. No C.O.D.'s. Full immediate refund if not completely satisfied.

TATU CO.

Dept. G5, 85 Columbia Dr., Williamsville 21, N. Y.

USE YOUR BENCH SAW

FOR JOINTING & CUTTING MOULDINGS



With our six inch tool steel cutters make mouldings, casings, drop-leaf tables, grooves beading and jointing. Moulding cutters, A 1 in. wide $1.75, 1½ in. $2.25. Jointing cutters, B 1 in. $1.75, 1½ in. $2.25. E 1 in. for drop-leaf tables, $1.75. E 1½ in. Makes ¾ in. cove & Quarter, $2.25. Postpaid. Guaranteed. State size hole. List & Folder free.

JOHN A. SANDSTROM
Rt. 2-P. Clearwater, Fla.

NO PARTS TO FLY OFF!!

JUST OUT!

1953 EDITION

It's New! It's Different! Get world's largest Auto Accessory & Parts Catalog and save money. Over 50,000 items, including Hollywood Accessories, Hi-Speed Equipment, Rebuilt Engines, all parts & accessories for all cars & trucks. We have that Hard-To-Get part! Jam packed with bargains. Completely illustrated. (100 pages) Send 25c (refundable).

J. C. WHITNEY 1917-F Archer Chicago 16

DO MORE PLANING JOBS WITH LOW-COST BELSAW $215.00

AMAZING 12¼-IN. PLANER Does All Ordinary Planing Mill Jobs. Provides attachments for Jointing, Rabbeting, Tongue, Groove, Matching. 12¼ x 6-in. capacity, 2-knife solid round all-steel cutterhead. Power feeds at 24 feet per minute, 42 cuts per inch. Provides for full line of accessory attachments—Grind and Joint knives IN THE CUTTERHEAD WITHOUT REMOVING.

FREE BOOK

BELSAW MACHINERY CO
1022 Field Bldg., 315 Westport Rd., Kansas City 11, Mo.

SHEET METAL BRAKES

Angles, flanges, Pittsburgh locks. 24 G. steel, heavier aluminum. Cam locking, mount on bench, truck or floor stand. Truss braced steel. Express collect. 30", 65 lbs. $28.50, 36", 75 lbs. $33.00, 48", 100 lbs. $48.00. Portable stands, 32" hi, 35 lbs. $7.00

IRON BENDER forms hooks, angles, eyelets, etc. Capacity ¼x2", 5/16x1½", 10 parts, all steel. Express Collect..... **$9.50**

24" CURVE FORMER. Forms straight and tapering pipes 2" to 2 ft. dia. 16 Gauge. Express collect. **$9.50**

(Immediate delivery. Order direct, cash or C.O.D., or send for folder.)

VYKE BRAKE CO., S-3016 Leavenworth, Omaha 5, Nebr.

FREE PLAN

Tells How to Start Your Own Business

FILING SAWS

Saws come from 20 and 30 miles

"I rented a two-car garage and have all the work I can do. Some days I start 6:30 in the morning. I get work 20 and 30 miles from my place of business."—Charles H. Smith

Files Thousands of Saws in Spare Time

"I have done 4 or 5 thousand saws in my spare time in the 4½ years since I got the outfit, and they are all coming back."—Len Crego.

FOLEY FILED SAWS BRING NEW CUSTOMERS

Here is a steady repeat CASH business you can start in your own basement or garage in your spare time. Every saw you sharpen with the machine accuracy of the Foley Saw Filer is an ad that brings more customers. S. M. Hollingshead wrote to us: "I am doing very well with my Foley Filer, and I am glad I invested in your machinery. It is very satisfactory and works very well in the small community in which I live."

You can file all hand saws, also band and crosscut circular saws on the Foley Saw Filer. The adjustments are simple—there is no eyestrain—and you can start right away to turn out perfect cutting saws. "The first saw I sharpened with my Foley Saw Filer came out 100%. I think it is a marvel of perfection."—writes Clarence E. Parsons.

"MONEY MAKING FACTS" explains how you can get business from hardware stores, home owners, farmers, carpenters, schools, mills, factories, etc. Just think—with a modest investment, no overhead, no stock of goods to carry, you can start right in on a cash business that will help pay the rent, buy groceries, or a new car. Get the facts—send coupon today for this practical, money-making plan. No salesman will call.

Send for **FREE BOOK**

FOLEY MFG. CO., 119-3 Foley Bldg., Minneapolis 18, Minn.

Send me free book **"MONEY MAKING FACTS"**

Name.....

Address.....

Schupacks AMAZING TOOL BARGAINS! ALL BRAND NEW MERCHANDISE

112 PIECE ASSORTMENT FOR ELECTRIC GRINDER $3.95 Post-paid

$10.00 VA. List — ONLY

Here's what you get! Mounted Stones on 1/8" mandrel, Drum Sander, Sanding Sleeves for sander, Rotary Cutters, Wire Scratch Brush, Bristle Brushes, Circular Saw Buffing Wheel, Grinding Wheel, Rubber Polishing Wheel, Cut-off Wheels, Rubber Cylinder, Mandrels to fit above tool, asstd Sanding Discs, Sharpening Stone, etc.

18 ROTARY CUTTERS $5.85 Post-paid

$13.50 Value (illustrated 1/2 actual size)

Assorted sizes cutter on 1/8" or 3/32" shank. Will fit all hand grinders. Ideal for cutting wood, metal, or plastic. Brand new.

12 MINIATURE CUTTERS $1.00 Post-paid

FOR CUTTING WOOD, PLASTIC, or METAL

Actual size. Asst. shapes on 3/32" shank. For die makers, home workshop, etc

7 HIGH SPEED TWIST DRILLS $1.00 Post-paid.

15 DRILLS FOR ONLY $2.00! Order Today!

7 Popular Sizes—up to 1/4". Brand new, ideal for home or shop use. Fits all stand and chucks.

5 DRILLS FROM 1/4" to 1/2" DIAMETER—$1.95

SURPRISE VALUE $1.00 Posts. paid

100 Pieces FOR ELECTRIC GRINDERS

Grinding Wheels, Cut-off Wheels, Sanding Discs, Mounted Stones, Sharpening and Honing Stones, Rotar Cutting Burs, Abrasive Cartridges, Mandrels, and many other items.

Free!

For a limited time only, and while supply lasts, we will give the items below absolutely FREE with every order for $6.00 or more. Value of these FREE items is $3.25.

3 Grinding Wheels 1 1/2" to 3 1/2"
1 Cut-Off Wheel 3" Dia.
2 Buffing Wheels 3" & 4" Dia.
2 Felt Pol. Cylinders

Every item in this ad, including the FREE items, is BRAND NEW FINEST QUALITY merchandise, sold with the Schupack guarantee of satisfaction. To get this FREE Offer clip this ad to order. All mdse. postpaid in U.S.A.

1953 Illustrated Catalog 10c

FLEXIBLE SHAFT — ONLY $4.95 Post-paid

Fits all electric drills & hand power tools. 35 3/4" long. Ollite bearings. Core of specially wound, high carbon steel wire in flexible steel casing. Will accommodate tool shafts up to 1/4" dia. For lathes, electric drills, etc.

2 DRUM SANDERS $1.50 Post-paid

With 12 Bands in Assorted Grits. 1/2" dia. x 1" long on 1/8" arbor with 12 bands

ONE DRUM, 1" DIA. x 1" LONG ON 1" ARBOR WITH 6 EXTRA SLEEVES $1.00 Post-paid

12 MOUNTED WHEELS and points on 1/8" Mandrel. $2.95 Post-paid

For grinding on plastic, wood soft and hard metals. Regular $8.40 List VA!

12 wheels on 1/8" Mandrel $3.60

18 MOUNTED POINTS ON 3/32" MANDREL $2.50

18 GRINDING WHEELS and rubber polishing wheels, up to 1" dia. For grinding & polishing metals, plastic, wood. With one 3/32" mandrel. $1.00 Post-paid.

10 CUT-OFF WHEELS 1 1/2" DIA. WITH 1/8" MANDREL $1.00

20 ABRASIVE ROLLS, cloth, and 1/8" mandrel for grinding, sanding, deburring metal, plastic, wood or rubber. ONLY..... $1.00 Post-paid

ADAPTER CHUCK With 2 interchangeable collets opening from 3/32" to 0, on 1/8" mandrel. Price each only $1.50 Post-paid

2 CIRCULAR SAWS ON 2 MANDRELS — ALL AT ONE LOW PRICE $1.50 Post-paid

2" diameter saws on 1/8" Mandrels. For cutting wood, plastic, or soft metals. Order at once! Send Check or Money Order

SCHUPACK SUPPLY CO., 7331 COTTAGE GROVE AVE., DEPT. PS-2, CHICAGO 19, ILL. SEND CHECKS OR M. O. NO COD'S PLEASE

AUTOMATIC COMPRESSOR UNIT

WITH 22 GALLON TANK

1/2 H.P. heavy duty capacitor motor, 110 volt A.C., 2" bore, 1 3/4" stroke, 60 cycle, 2x1 3/4 inch piston type compressor, splash feed lubrication, 14"x32" tank, automatic pressure switch, CFM 2.8 at 100 lb. pressure, or 150 lbs. pressure for intermittent duty. Check valve, safety valve, 20 ft. air hose with air chuck for inflating tires. V-belt drive. Mounted on 2 wheels, ball bearing with 2"x8" semi-pneumatic tires. Portable with handle. Shipping wt. 150 lbs.

With 1/2 h.p. motor Regular Price $175 $98.50

With 1 1/2 h.p. gas engine $124.50

Regulator, gauge and filter included at no extra cost

WELLWORTH AIR COMPRESSORS

Aluminum piston, stainless steel valves, 3 piston rings, bronze bearings, splash lubrication, intake muffler, V belt cast iron fan cooling flywheel.

MODEL W800 COMPRESSOR

2"x1 3/4" 2.8 c.f.m. Operates with 1/4 HP or 1/3 HP motor up to 150 lbs. Weight 20 lbs. Special price.... **$20.50**

MODEL W200 COMPRESSOR

2 1/2"x2", 2.55 to 4.80 c.f.m. up to 150 lb. pressure. Operates with 1/2-3/4 HP motor. Reg. price $36.50. Special price .... **$27.95** Wt. 24 lbs.

MODEL W7 COMPRESSOR

2 cylinder 2 1/2"x2", 5.10 to 8.50 c.f.m. up to 150 lb. pressure. Operates with 1/2-3/4-1-1 1/2 HP motor. Reg. price $67.50. Special price .... **$54.50** Wt. 45 lbs.

PRICES F.O.B. CHICAGO, MONEY BACK GUARANTEE, SEND CHECK OR MONEY ORDER TODAY, PROMPT SHIPMENT.

WRITE FOR FREE CATALOG of bargains in light plants, generators, blowers, gas engines, etc.

WELLWORTH TRADING CO.

1832 S. WABASH AVE., Dept. B-153, CHICAGO 16, ILL.

BARRON *Drill Press* TOOLS

FOR WORKSHOP AND INDUSTRIAL USES...

● Over 40 precision built woodworking tools and accessories . . . Hi-Speed Router Bits—Rotary Surface Sanders & Drum Sanders—Safety Shaper Cutters—Dovetail Cutters—Large Auxiliary Metal Tables—All Metal Shaper Fences — Spindle Adapters — Handy Bench Vises. Many other items indispensable for accurate, useful, versatile workshop use. Every tool sold on complete satisfaction or your money back. See your Barron Dealer. Ask for special folder — "24 Extra Uses for Your Drill Press."

ROTARY PLANER

Planes • Rabbets
Tenons • Panels
Routs • Bevels

Only $7.50 COMPLETE

FREE Workshop Guide & Catalog

BARRON TOOL CO. INC.
366 Architects Bldg., Detroit 1, Mich.

ARC WELDING FOR PROFIT OR PLEASURE

60 LBS. OF READY MADE PARTS Only $24.95

BUILD YOUR OWN HEAVY DUTY WELDER SAVE BUY ONLY NECESSARY PARTS

All necessary parts Ready-Made and easy to assemble. You can do all around welding on steel, cast iron and other metals after only a few hours practice. Illustrated instruction manual included. Sold on 30 Day Money-Back Guarantee! Free plans for building case.

FREE: Write today for fully illustrated Pamphlet S-1

ATOMIC ARC WELDER CO. 1039 So. 19th St., OMAHA, NEBR. *Gives 100% penetration. Welds are stronger than original metal.*

Guided Missile Filter CAN NOW BE USED IN YOUR CAR!

Complete filter assembly (give make of car) **$12.95**

Permanent Element only (To fit in your present filter case)... **$6.95**
(Give make and model of car and present filter.)

(Above prices postpaid or send $1.00 deposit, balance C.O.D.)

STOP THROWING MONEY AWAY!

GOVT. APPROVED OIL FILTER ELEMENT

NEVER NEEDS REPLACING! FULL 10 YEAR GUARANTEE!

The sensational "LIFETIME" oil filter forces all your oil through a porous bronze filter element which never wears out. It filters out dirt particles as small as 39/millionths of an inch as soon as your engine starts and allows no oil loss or bypass regardless of engine temperature. It saves the quart of oil soaked up by ordinary filter elements and does not absorb valuable, protective oil additives. "LIFETIME" pays for itself over and over by saving oil, engine repair, and ending the expense of stock filter element replacement. Fits all cars and light trucks. To clean, just rinse the bronze cartridge in gasoline.

Skidmaster

AUTO STABILIZER

CAN SAVE YOUR LIFE!

- **CONTROLS SKIDDING**
- **SAVES TIRES**

SKIDMASTER prevents death-dealing, bad weather skids by automatically balancing car weight. Professional racers proved that SKIDMASTER'S stabilizing action gives your car constant control—**even against blowouts.** Maintain and increase your traction . . . reduce sway & vibration with SKIDMASTER.

HOW SKIDMASTER WORKS . . . The moment your car moves, and especially when it skids or swerves sharply, SKIDMASTER sets up a counter force. This force, immediately overcoming the skidding momentum, is set up by the 43 lb. internal counterbalancing weight. Easily attached (out of sight) under rear bumper or in trunk of *any car.* **COMPLETE UNIT PPD. ONLY** **$39.95**
(Or send $10 deposit, balance C.O.D.)

SAVE GAS

WITH A FUEL PRESSURE REGULATOR!

STOP: • **Power Loss** • **Flooding** • **Fuel Waste** • **Stalling**

MANY USERS CLAIM UP TO 25% BETTER MILEAGE as this revolutionary new accessory stops gas waste caused by fuel pump pulsation. It eliminates carburetor overflowing and fuel "surge". Stops the annoyance and danger of "motor cut-out". As this precision regulator s-m-o-o-t-h-s fuel flow, it also prevents vapor lock and percolating. It pays for itself ten-fold with gas savings, by eliminating frequent carburetor adjustment and by reducing engine and carburetor wear. Fits all cars and trucks. 15 day "money back" guarantee! Postpaid..... **$7.95**

Before—After

(Or send $1.00, balance C.O.D.)

NEWHOUSE AUTOMOTIVE INDUSTRIES Dept. AX-1, 5805 E. Beverly Blvd., Los Angeles 22, Calif.

World's Largest Distributors of Speed-Power-Economy Equipment

STOP BURNING OIL!

AMAZING NEW MOTOR RENEW KIT OVERHAULS MOTOR IN 10 MINUTES

- **RESTORES POWER**
- **ELIMINATES PISTON SLAP**

CLEANSE with "MOTOR PURGE"

In the FIRST step of the famous Motor Renew treatment, the "Purge" formula cleans, quiets and frees rings, valves and pistons from efficiency and power robbing carbon, gums and varnish. Pour this miracle solvent into the cylinders, run your motor and watch the combustion residue billow out your exhaust pipe.

RENEW with "COMPRESSION SEAL"

RESTORE COMPRESSION...GET NEW POWER, SPEED AND ECONOMY

with "Compression Seal"! As the SECOND step of the Renew treatment, squeeze this self expanding mineral compound into your cylinders where it can fill worn spots (which cause compression leaks) between cylinder walls and pistons. Thus it restores compression . . . cuts oil-gas waste and eliminates costly engine overhaul and ring jobs.

100% MONEY BACK GUARANTEE!

A $100,000 insurance policy guarantees that this "Renew" treatment will not harm the finest engine.

DEALER INQUIRIES INVITED!
FREE Auto Manual With Each Order!

Kit treats all cars and trucks
$6.95 POSTPAID (Or send $1 deposit, balance C.O.D.)

BEFORE **AFTER**

CONSOLIDATED ENGINEERING, Dept. PSK-1
10407 W. Washington Blvd. Culver City, Calif.

Increase "gas" mileage!

10 DAY FREE TRIAL IN YOUR CAR

This new air-bleed idling jet replaces present solid idling adjustment screw in your carburetor. The object is to lessen the vacuum in the idling channel by bleeding air during high manifold vacuum periods and thus, try to increase Your Gas Mileage. ABOUT 1/2 MILLION NOW IN USE. Most users who write us swear by them and some report up to 25% more mileage. Many comment on Smoother Motor, Easier Starting, Faster Pick-Up, Better Idling. But some swear at them with "No Improvement" and fire "the little stinkers" back—proving Gane's can and do sometimes fail completely. So we invite you to try "the little stinkers" at "no cost", to see what they will do for you. Make NO deposit. Send NO money. Pay postman NOTHING. There are NO reservations, qualifications nor restrictions to this TRY BEFORE YOU BUY—10 DAY FREE TRIAL OFFER. Just mail this coupon today. GANE NEEDLES, with literature, will be promptly sent you postage paid. You, or your service station, can quickly make the simple, easy installation.

USE GANES 10 DAYS—Check for increased gas mileage which must average 2 or more extra miles per gallon. At the end of ten days send us only $1.50 per Gane Needle in check, currency or stamps or else send them back and owe nothing!

OCTA-GANE, Dept. GS-1
605 W. Las Tunas, San Gabriel, Calif.

Name.....
Address.....
City.....Zone....State.....
Year & make of car.....No. cyl.....

NOW! SAW 2x4's IN ONE EASY CUT WITH NEW LARGER 'ARCO-SAWS'

AMAZING NEW SAFE-CUT BLADE ALLOWS ANY ¼" DRILL TO WHIZ THRU HEAVY LUMBER, WALLBOARD, PLYWOOD, etc.

At last, here are the first—**the only**—gear driven saw attachments to whiz thru 2x4's in one cut! Imagine, now you can build **anything** from bookcases to a bungalow with these sensational new saws. A moderately priced drill will do the job because of new "ARCO SAFECUT" Blade.

No. 455 "ARCO-SAW" For Depth & Bevel Cuts with ALL GAGES & 5" "ARCO SAFECUT" Blade. **$12.50**

No. 454 "ARCO-SAW" For Straight, less exact, Cutting. Same as above. Has accurate visual sight Guide..... **$10.95**

ONLY "ARCO" GIVES YOU THESE FEATURES: 5-inch Safecut Blade—cuts faster—uses 30% less power, **Graduated Depth & Bevel Gages** for cuts to 1¾"—bevels from 0 to 45°. **Adjustable Rip Gage & Visual Guide, Sturdiest and Easily Adjusted Safety-Yoke** keeps drill steady. **Worm Drive Clamp** releases drill in seconds. **Precision Gear Box with Steel Gears. 90-DAY FACTORY GUARANTEE.**

REPLACEMENT BLADES: Specify 5" Safecut, or Combination, or Rip, or Crosscut Style..... **$1.75**

NEW! 'ARCO SAFECUT' SAFETY SAWBLADES

The Safest, Fastest Cutting Sawblade Ever Made! Made of finest tempered tool steel. No "Kick-back" accidents — cannot drag hand into blade. Easily & quickly resharpened with ordinary handfile.

6" Blade...$1.75 7" Blade...$1.95 8" Blade...$2.18

Special Bores for Skil, Mall, B&D Saws—Add 30c

Unconditional 10-Day Money Back Guarantee on all Items

DEALERS: Write for nearest jobber

BUY THE BEST—see your hardware dealer now! Don't accept inferior substitutes—if not available send us check or M.O. (Postpaid). C.O.D.'s—postage extra.

ARROW METAL PRODUCTS CO.

Dept. PS-1, 140 WEST BROADWAY, N. Y. 13, N. Y.

You Don't Need MUSCLES

. . . with a VISE-GRIP WRENCH

Locks To Work With TON-GRIP

Model 10-W, $2.60

Leave your TOUGH fixin' jobs to Vise-Grip! A squeeze of the hand, and powerful jaws lock to work with **Ton-grip.** Won't slip! You can turn, twist, hold, bend, cut, ratchet. So E-A-S-Y, so FAST! 7" and 10", with or without cutter. Only $1.85 to $2.60 at your dealer.

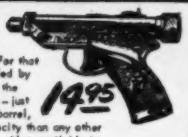
Manufactured Only By

PETERSEN MFG. CO. INC.

Dept. M-1 DeWitt, Nebr.

ORDER BY MAIL from PALLEY'S

NEW HY-SCORE .177 CAL. AIR PISTOL



The finest Air Pistol you have ever seen. For that Target or small game shooting. Recommended by General J.S.Hatcher in April 1952 issue of the American Rifleman. No pumping necessary – just cock and fire. Has an ALL STEEL rifled barrel, 7-3/4" long. Will give a higher muzzel velocity than any other air gun. Shoots .177 caliber pellets or darts. Also available in 22 cal. or BB. Write for information on other models. **14.95**

CLAMP-ON-ANYWHERE LAMP

One of the handiest lights you can own! Clamps on anywhere. Fully adjustable ball swivel lets light move freely. Can be used with ordinary bulb, photoflash or photoflood. Also use as reading lamp, work lamp, etc. Socket assembly includes clamp, adjustable swivel, cord and plug..... LAMP ALONE..... **1.39**

Spot reflector (5" diameter) / Parabolic flood reflector (9" diameter) } **1.09 EA**

NAVY SEALED BEAM LIGHT

U.S.NAVY Portable Search-spot light. Has a pistol grip and aiming sight. Makes an ideal search, spot or emergency light for Home, Car, Boat or Camp.

12 Volt light – 4" lens. **4.29** 24 Volt light – 5" lens. **4.79**

4-WAY SWIVEL LAMP

A handy light for desk, work bench, chart table, engine room, etc. Can be used on 6–12–24–110 volt by changing bulb. 3 ft. shaft has 4 joints to adjust position..... **3.29**

FLEXIBLE GOOSENECK LAMP

A real Surplus Buy! For the Home or Workshop. 110V, AC. Has flexible shaft, long wire, socket, switch, plug and mounting bracket. **1.25**

U.S.NAVY PHONE SET

Used by the Navy for flight deck and gunnery control. An ideal emergency communication system because they require no power supply. Perfect for office-to-shop, house-to-garage or barn, or any point-to-point within a ½ mile radius. These sets are fully Sound Powered. Each set includes 2 phones on chestplate, 2 headsets, 1 button switches & approx., 35 ft of cable. **10.95 PR.**

One phone and headset..... **5.95 EACH**

UTILITY BAG

Room to carry ammo, flashlight, compass, camera, maps, food, first aid kit, etc. Made of Heavy O.D. canvas. Has a wide, adjustable shoulder strap. Two rings on each side for tying on extra equipment. Inside has two large compartments. Cover straps down. Size: 12"x7"x4". **1.29**

CUNO OIL FILTER

An aircraft type oil filter which can easily be adapted to autos, etc. Will keep oil clean without a cartridge replacement. Can be installed in minutes. Has two mounting braces. Lge size, 5/8" tube ports.

A real SURPLUS BARGAIN. **6.95**

INSIDE-OUTSIDE VERNIER CALIPER

German made by one of Europe's leading specialists in precision tools. Measures inside – outside – depth in .001" to 6" in 1'000-ths and 1/10mm to 150 mm in 10 ths. GUARANTEED..... **9.75 NEW**

STAND MAGNIFIER

Handy stand magnifier with universal adjustment. Overall height: 6". Has a powerful, clear magnifying lens.. **1.49**

REPAIR KIT

An all-purpose kit! 6 useful tools – a fine steel trimming knife – pair of genuine WISS heavy duty scissors – a steel roller for cementing seams in fabric, wallpaper, etc Two 12" half round files – a wire burnishing brush. Complete in cloth case. Ideal for wallpaper and linoleum. A 9.50 VALUE **3.29**

MAGNETIC BASE INDICATOR HOLDER

Time saver for precision checking. Magnetic base fits curved or flat surface. Has 45–50 lb. pull. 6½" stainless steel rod which is mounted in ball socket to permit universal settings. **3.50**

NOTE: We have complete line of instruments, depth gauges, inspection mirrors, etc. Write Today!

BENCH CLAMP

Carpenters, wood workers, cabinet makers – you need this one! Opens to 8" with 2-3/4" thumb screw. All steel, sturdy & dependable. Handy for clamping, glueing, assembling, etc. **1.59**

PALLEY'S DEPT PS 1, 2263 E. VERNON AVE., LOS ANGELES 58 CALIF.

SAVE UP TO 85% ON WAR SURPLUS

PALLEY BARGAINS

RADIO MIX

Ideal for 'ham' operators, experimenting, etc. Mix contains: Headset, mike, button, trans. wire, insulators, switches, condensers, rheostats, terminals, jump cable, etc. 8 packed lbs. **2.49**

RADIO HEADSET

HS-30U – Two magnetic type receivers in watertight brass case. Soft rubber inserts in each receiver to fit into wearers' ear. Pliable steel head band. Ideal for communications, divers, workers in noisy compartments, etc . . . . NEW **3.29**

MICROPHONE

Popular telephone type, highly sensitive. Has excellent, clear tone. This was the Signal Corps favorite. An ideal instrument for the Radio 'ham' and professional recording studio, for broadcasting, home recording, public address systems, etc. Comes complete with cord & plug. **3.29**

RADIO ANTENNA REEL

For tuning beam antenna, opening and closing doors, etc. Powered by 1/8 HP, 24V, GE motor, engaged to a gear reduction only when electrical contact is made. Operates in either direction. Ideal for an auxiliary power take-off. Has 150 RPM at take-off.

NEW **8.75** USED **6.75**

MAKE YOUR OWN POWER UNIT

COMPLETE UNIT

Here's a unit PACKED WITH BRUTE FORCE! Does all those hard, heavy jobs that ordinary Power Tools cannot handle. Easily made from a vacuum cleaner type motor, a gear reduction drive and a few homemade parts. Can be used for turning large nuts & bolts, digging post holes, drilling large holes in wood or metal, driving power tools, & machinery, lifting, pulling, pushing, or any job where a slow speed with high take-off is required. YOU CAN'T STALL IT! Lightweight, easy to handle. Has 1000's of uses in the home, garage, shop, factory. We supply complete instructions.

MOTOR **3.25**

GEAR BOX NEW **12.95** USED **6.75**

3 SPEED TRANSMISSAW

Converts a high speed, low power input into low speed, high power take-off. Has 2 take-off shafts at 4 to 1 and 16 to 1 ratios. Gear box has a worm drive, bronze gears and a throw-out clutch. Will operate in either forward or reverse directions. Adaptable to many uses on power machinery. . . . **17.95**

90° TRANSMISSION

Has 1½ to 1 gear reduction through bevel gears. Pre-lubricated bearings in dust proof housing. – A Positive lever control clutch . . Size: 7" x 6". – 3/4" take-off shaft **3.95**

PRESSURE TANKS

G-1 Type – Stainless Steel, shatterproof & rustless. Has reinforcing ribs and is pressure tested up to 400 PSI. Has high safety factor. Both ends have 1/4" pipe ports.

Ideal for use as a buoy, drinking water supply, underwater fishing, diving, painting, cooking, or spraying.

G-1 – 12½" x 24" ONLY **10.95**
D-2 Tank- 500 cu. in cap. . . **3.95**
A-4 Tank- 104 cu. in. cap. . . **1.95**

AMAZING BERNZ-O-MATIC TORCH

It makes the old "blow-torch" obsolete. Here is a self-contained fuel & burner unit that does a job where intense heat from a concentrated flame is necessary. It is absolutely SAFE! (ICC approved). Has a replaceable fuel cylinder of high quality steel

PENCIL FLAME Type- with 13 hour cylinder and (1) burner unit ONLY **6.95**

EXTRA FUEL CYLINDERS. **1.95**

BENDIX HYDRAULIC PUMP AND MOTOR **19.50**

Has 3½ GPM capacity at 600 PSI. Motor is 1½ HP, 24V, DC. Operates on either 12 or 32V, DC current. Has built-in relief valve adjustable to 1500 PSI. This unit ideal for bait tanks, hyd. lifts, portable loaders, etc. Cost Gov't approximately $350.00.

MAKE YOUR OWN HYDRAULIC REMOTE CONTROL

The ideal remote control for hundreds of uses such as throttle controls, engine & motor controls, switches, machinery, on large & small boats, in shop or factory, etc. Eliminates messy cables, pulleys, wire & rope connections. Gives positive, full range, instant action. Kit has two No. 3 Hydraulic Cylinders, shut-off valves, bleed valves and all fittings. The two cylinders are connected by tubing (any length) and filled with oil. When Master is moved the Slave responds equally in movement and pressure. Master may be used with many slaves by simple adaption. Hydraulic Copper tubing for use with above unit . . 18¢ run ft. Complete assembly instructions furnished with each kit.

KIT ONLY **17.95**

GADGET MIXES

GADGET MIX – Rivets, Spacers, Bolts, Screws, Gears, Wheel Bearings, Springs and Clamps. 5 lbs. **1.19**

BEARING MIX – Approx. 20 Needle, Ball & Roller bearings. New and Used. Sizes: 1/2" to 4". Some cost Gov't $10 apiece. 5 lbs. ONLY **1.59**

FILE MIX – 10 assorted Files. 4" to 12". Includes Vixens, Half Rounds, Mills, Bastards, etc. In seconds and used but good condition. One vixen alone is worth our price for the entire mix . . . . . **99¢**

32 POSITION SWITCH

Was used as a bomb selector switch. Has 32 separate contact points through 1 common lead. Ideal for use in radio, experimental work, electronics, shops, factories, etc – Has 32 post, Amphenol connector plug. Uses 12–24 volts. current. In all metal case . . **3.95**

AIRCRAFT CABLE

Rust resistant, alloyed steel. Extra flexible. Pre-formed, 7 x 19 strand. On reels

1/16" – 4½¢ ft. (7x7)	7/32" – 11½¢ ft.
5/64" – 5¢ ft. (6x7)	1/4" – 12½¢ ft.
3/32" – 5½¢ ft. (7x7)	9/32" – 15¢ ft.
1/8" – 7¢ ft. 7x19	5/16" – 16½¢ ft.
5/32" – 7½¢ ft. "	3/8" – 18¢ ft.
3/16" – 10½¢ ft. "	1/2" – 20¢ ft.

Stainless Steel Cable – Pre-Formed

1/16" . . . . 7¢ ft.	5/32" . . . . 20¢ ft.
1/8" . . . . 18¢ ft.	3/16" . . . . 23¢ ft.

Bronze Cable – Not Pre-Formed

1/16" – 5¢ ft.	5/16" – 23¢ ft.
1/4" – 17¢ ft.	1/2" – 38¢ ft.

AGASTAT-TIME DELAY RELAY

A 24 volt solenoid is held from a fraction of a sec. to 15 seconds by a Time Delay mechanism. When coil is energized it operates a double pole, single throw relay switch. Can be used on electric locks, animated signs, labs, etc. Fully adjustable by set screw **2.25**

WESTINGHOUSE AIR COMPRESSOR

1000's now in use for spraying, inflating, air tools, in garages, laboratories, shops & on trucks, tractors, jeeps, etc. Lightweight but powerful. Operates on 1/2 HP, gas or electric motor Runs in either direction. Delivers approx. 3.27 CFM at 600 RPM or 6.54 CFM at 1200 RPM. Has 2" bore, 1-1/2" stroke.

We also have available motors, tanks & fittings to adapt this unit. **23.95**

230 PAGE CATALOG

1000's of ITEMS! Fully ILLUSTRATED! For the MECHANIC, SPORTSMAN, HOBBYIST, HOME OWNER, etc.

War Surplus — Factory Closeouts and General Merchandise Values!
Save on Hardware, Hand & Power Tools, Gadgets, Sports Equipment, Hydraulics, etc. SEND 25¢ for HANDLING & MAILING.

ELECT. GYRO

50,000 RPM Motor is an integral part of balance wheel. Has double-end shaft to drive precision tools or machinery at precise, controlled speeds. Ball bearing mounted. High or low voltage. Ideal for experimental work, labs, hobbyists, technicians, etc. **4.95**

ORDER BY MAIL!

2-WAY INTERCOM PHONES

Install this set of desk telephones for perfect, two-way communication between any two points up to 100 ft. This handsome set comes in a blue enamel finish. Has 2 phones, wire and simple hookup instructions. Operates on ordinary flashlight batteries. Here is the ideal set for use room to room, garage to house, barn to house, darkroom to outside, office to office or shop. Stock is limited! ORDER TODAY! **7.50**

RIGHT ANGLE SPINDLE DRIVE or GEAR BOX

Has 19-3/4" stroke at 1 to 1 ratio. 7/8" input and take-off shafts may be shortened if desired. Input shaft has universal joint. Has a threaded mount stud with tapered roller bearing adaptable to swivel mount. . . **7.95**

ELECTRIC ACTUATOR

NEW

Paste Linear Actuator – Has hundreds of uses for any mechanical device needing controlled two way action. Will open, close, raise or lower doors, windows, gates, etc. Has a 8500 RPM, 1/6 HP series wound motor. Operates on 24V DC current. Gives 4-1/2" stroke in 13½ secs. Compression and tension loads up to 750 lbs. Has adjustable micro switch for limits of travel. Overall length retracted is 11 inches. . . **7.95**

EASTMAN ACTUATOR

Has a 1/8 HP, 24V, DC, 10,000 RPM motor & push-pull actuator. Actuator has a 4" travel through a reduction gear box. Has adjustable limit switches and forward and reversing reversing relays. Overall length extended, 20"; retracted 15½" . . **12.95**

GEAR HEAD MOTORS

Heavy duty, G.E. motor. 2 HP, 24V, DC, 125 amp., reversible motor to drive a reduction gear unit giving 36 to 1 ratio at take-off.

GEAR BOX **7.95**
MOTOR ALONE **4.95**

Unit will operate on 6 or 12 volts

36 to 1 G.E.	(306 shaft RPM)	10.95 EACH
28 to 1 Eclipse	(130 shaft RPM)	
40 to 1 Eclipse	(110 shaft RPM)	

GHM-528 Low GEAR HEAD MOTOR

– Low 24 volt DC, 7.6 amp, series wound reversible motor with overload clutch. Motor turns 11,000 RPM driving thru a 11 to 1 gear reduction box which turns the final take-off shaft 1000 RPM. Adjustable limit switches control limit of travel. Take-off shaft adapts to flex or rigid drive. Size: 10" x 4" **9.95**

FIRE EXTINGUISHER

Kiddie Lux – CO^2 Type. Built to Gov't specifications. Has heavy, shatter-proof case. Recent hydrostatic test. Reconditioned and fully charged. LIKE NEW! All are READY FOR INSTANT USE!

2½ lb. size with Swing Nozzle . . $14.95
7½ lb. size with Horn 21.75
10 lb. size with new Squeeze Grip Handle & 3½ ft. flex hose with Horn 27.75
15 lb. size with Wheel Control . . . 35.75
15 lb. size with Squeeze Grip Handle, 4 ft. flex hose, Plastic Horn . . 39.95

PALLEY SUPPLY CO.

2263 EAST VERNON AVENUE DEPT. PS-1 LOS ANGELES 58, CALIF.

Order From This Ad. Pay by Money Order, check, P.O's. accepted from F&B firms. Deposit with C.O.D's. All Prices FOB Los Angeles.

TIME SAVING TIPS

ALL YOU NEED IS A TUBE OF

DU PONT DUCO CEMENT

REG. U.S. PAT. OFF.

WHEN HANDLES COME OFF, put 'em back on to stay with "Duco" Cement. It's a must in the tool room.

LOOSE REAR-VIEW MIRROR? It'll hold fast if you put it in its place with strong Du Pont "Duco" Cement.

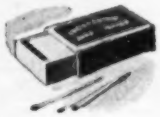
REPAIRS CHAIRS. Strong "Duco" Cement puts loose rungs in so they'll stay. Makes chairs sturdier.

LOSING YOUR GRIP? Anchor loose golf-club grips with "Duco" Cement. Good for tennis-racket grips, too.

FOR THE BIRDS. Build an attractive birdhouse. You can make it strong and neat with "Duco" Cement.

COAT STRIPPED THREADS with "Duco" Cement for new gripping power. Perfect for emergency repairs.

KEEP BUGS OUT by mending small tears in screens with strong, transparent, waterproof "Duco" Cement.



WATERPROOF MATCHES for camping trips. Dip them in easy-to-use "Duco" Cement, and wipe smooth.

A HOUSEHOLD FAVORITE FOR 25 YEARS

DU PONT

BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

I've Ridden in a Flying Warehouse

[*Continued from page 159*]

blisters in the plane's sides. Slowly Pittard backs up the plane and then awaits clearance from the tower to take off.

Off go the brakes and at 6:25 the back of your seat rushes up and slaps you with a mighty forward thrust.

At a time like this you look for reassuring facts. You remember that XC-99 once climbed easily from Travis Field lifting 160 tons, 13 more than today.

At 95 miles an hour the nose rises slightly. One long breath later the main gear breaks away. You are off and flying.

By 6:45 you are at 6,800 feet, cruising at 195 miles an hour. The engines, you learn, are now developing only 1,700 brake horsepower each. But in an emergency, her 168 cylinders would quickly unleash a total of 21,000 horsepower.

West Texas is sliding away beneath the 230-foot wing behind you. Inside that wing are 9,000 gallons of gas and 600 gallons of oil. On long-distance flights, she can stow enough fuel to carry her a third of the way around the world.

One of Its Kind

Approaching Sacramento's McClellan Field, Pittard brings XC-99 into the right-hand traffic pattern. Airspeed drops from 180 to 120 miles—slightly above stalling. XC-99 is settling gently. There is no bump, no bounce, as your glide ends.

It is no secret that while the top brass are well pleased with XC-99, they will probably never build another plane to the same specifications. Already there is talk of other models whose Gargantuan proportions would convert XC-99 into a medium cargo plane. In short, "X" stands less for "experimental" than for the unknown factor in the modern military riddle: How big is BIG? END

Fly Power

Hubby: "Just look at the power in this new car—we're actually flying!"

Wife: "Yes, dear, but hadn't you better move to the side of the road so that policeman on the motorcycle can get by?"—*Franklin News.*

EXTENSION CORD

(Item 16) 40 ft. **heavy duty**, made of specially insulated No. 14 2-conductor wire. So tough that you can drive over it and yet flexible and easy to handle. Resists oil, grease or water. Extends electricity up to 400 ft. without voltage drop. Use indoors or out. Complete with heavy rubber plug and outlet. Wt. 2½ lbs. Usually $4.50—Special 40 ft..... **$1.99**
Comb: 2-40 ft. and 1-20 ft. (total 100 ft.)..... **$4.95**
100 ft. length (one piece) **$4.85**
WIRE ONLY (Item 50)
No fittings. 100 ft..... **$4.00**

HEATING & VENTILATING FAN

(Item 10) Easily installed in furnace pipes. Forces even heat to all rooms. Over range, removes kitchen smoke and odors. Powerful continuous duty motor, 110-120 v. A.C. Quiet, super efficient fan moves huge volume of air (400 to 600 c.f.m.) 8" Fan, wt. 5 lbs., **$6.85**; 9" Fan, wt. 6 lbs., **$7.85**; 10" Fan, wt. 7 lbs., **$8.85**; 12" Fan, wt. 8 lbs. **$9.85**.
HEAVY DUTY 12" fan, enclosed motor, suitable for spray booths, restaurant exhausts, poultry houses, and other difficult applications. Wt. 12 lbs. Item 101 **$12.95**

RUBBER HOSE

New genuine Neoprene Hose—outlasts ordinary rubber 3 to 1. Reinforced with super tough cotton cord plies. Flexible. Easy Flo brass couplings with standard pipe threads for quick connections, included. Pump water for irrigation, stock tanks, home, barn, fire fighting, etc. Pump Gas or Fuel Oil. Save more than 60%.

In. Diam.	1"	1¼"	1½"	1¾"	1½"
Length	10 ft.	25 ft.	50 ft.	100 ft.	30 ft.
Price	$5.95	9.25	24.75	49.95	14.75

If specified we will send special hose for gas or oil at same prices.

32 Pc. SOCKET SET

32-pc. Socket Set (Item 59) Highest quality guar. non-breakable sockets made by Husky. Beautiful, matched chrome alloy, absolutely the best. Complete range of 21 sockets from ¼"thru 7/16" in ¼" drive and 7/16" thru 1-1/16" in ½" drive; 2 extensions, reversible ½" ratchet, adaptor bit, slide head, all angle coupling, 2 crescent wrenches, ¼" speeder handle and sturdy metal tool box. For prof. mechanics who want the best. Wt. 14 lbs. Easily worth $41.50. While they last only **$16.95**

45 Pc. SOCKET SET (Item 205) Contains a complete set of sockets in ½" drive, ⅜" drive and ¼" drive, plus all necessary extensions, handles, speeders, reversible ratchets, etc.; all uncond. guaranteed against breakage. Beautiful matched chromed thin wall alloy sockets in a sturdy handsome steel tool box. Wt. 17 lbs. List price $62.90. Factory Special..... **$26.95**

HYDRAULIC JACKS

(Item 208) Heavy duty, precision built, smooth, positive acting with built-in relief valve. Hi-lift with screw extensions. Govt. surplus at a fraction of orig. cost. (Handle included.)
1½ ton (Item 208) Wt. 11 lbs..... **$6.45**
3 ton (Item 208A) Wt. 15 lbs..... **$9.45**
5 ton (Item 208B) Wt. 17 lbs..... **$11.45**

FACTORY PRICES

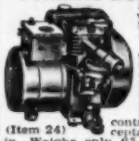
YOU PAY LESS THAN 50% RETAIL

SATISFACTION UNCONDITIONALLY GUARANTEED

HI-LINE 6000 WATT PLANT

(Item 162) **Push Button Start.** 115-230 v. 60 cycle A.C. A brute of a power plant with a rugged 13 hp. Wisconsin engine. Plenty of electricity for ranges, water heaters, freezers, pumps, machinery, etc. Affords both 110 and 220 volts. Ideal where heavy current is needed. Wt. 590 lbs. Easily worth $995.00. **With self starter.** Factory price..... **$645.00**
Generator and control box only, belt driven. Use your own engine or tractor. Wt. 240 lbs. (Item 163) Factory price. **$345.00**

PORTABLE LIGHT PLANTS



(Item 24)

350 watts—115 v. D.C. powered by a sturdy, easy-starting 1½ hp. Briggs engine, perfect for lights, radios, razors, etc. in cabins or trailers. Use standard light bulbs. Built-in control box with receptacle — just plug in. Weighs only 65 lbs. Item 273 Reg. price $199.50. A terrific value at..... **$99.75**

PUSH BUTTON START A.C. PLANT 500-700 watts—115 v.—60 cyc. A.C. Powered by a rugged 2 hp. easy-starting Briggs gas engine. No wiring necessary, just plug in and operate. Plenty of current for any oil burner, freezer, brooder, emergency lights, etc. which require up to 700 watts. Ideal for Civil Defense, Fire Depts., trailers and camps. Complete with Voltmeter and built-in winding to charge 6 v. auto batteries. Item 24. Wt. 85 lbs. Fully Guaranteed. **Be Prepared if war or storm knocks out power lines.** Reg. $275 value..... **$143.50**
1000-1200 Watt Plant (Item 45) same as Item 24 but larger generator and engine..... **$199.50**

HEAVY DUTY D-C ARC WELDER

(Item 38)

Use as portable or shop welder. Up to 300 amps. Senior model. Made for years of trouble-free, continuous service. Will handle light or heavy jobs. Easily welds up to ⅜" plate using ¼" rods. Built-in air cooling system. Arc is easy to strike and hold, because of specially designed arc stabilizer. Hi-lo switch and dial control gives wide range of welding heats. Run welder at 2600 rpm. with tractor, jeep or 15 hp. gas engine, or 7 hp. elec. motor. Complete with instructions, guar. and double V belt or flat pulley. You can pay more, but you can't buy a better welder. Wt. 110 lbs. Usually $400 value at..... **$99.75**
DUAL CONTROL MODEL same as above but with built-in dual rheostat for low heat soldering, brazing, welding. Spec. **WELDING KIT.** Two 10 ft. leads, welding helmet, electrode holder, ground clamp. Sold only with welder at..... **$10.50**
Write for prices on A.C. Arc Welders.

GIANT 2000-2500 WATT PLANT

(Item 31)

110-120 V. 60 cyc. A.C. **Absolutely the best made** — exclusive dynamically balanced armature heavy windings develop up to 5000 watt overload for motor starting. Skid-mounted—portable. Powered by easy starting Briggs or 6 hp. Wisconsin engine—complete with all accessories; engine easily disconnected for other uses. Big outlet box, voltmeter, no wiring necessary. Ample current for all purposes. Factory warranty and complete instructions included. Wt. 220 lbs. Reg. price $585.00. Special at..... **$299.50**
With Electric Self Starter.. **$359.50**
GENERATOR ONLY and control box. Drive it with your engine or tractor **$169.95**

HEAVY DUTY POWER CABLE

#12-2 Cond.-stranded, very flexible, rubber covered, special outside conductor for grounding power tools, etc. Finest heavy duty power cable made. 50 ft. (Wt. 8 lbs.) Item 199..... **$6.95**
100 ft. (Wt. 16 lbs.) Item 200..... **$12.95**

3000-3500 WATT PLANT

(Item 198) 110-220 v.—60 cyc. A.C. with Wis. Engine, **push button start.** Wt. 370 lbs. Heavy duty..... **$399.50**
Generator only for belt drive. Wt. 115 lbs. (Item 198A)..... **$239.50**

COMMANDO MOTOR BIKE

Speed to 40 M.P.H. Travels on Any Kind of Road. Amazing 5 Yr. Guarantee

The Commando Motor Bike is new throughout. Advanced engineering—Automatic Clutch provides quick acceleration and easy hill climbing—yet motor idles at will when you stop. No belts or chains. Rugged lightweight 2-cycle engine delivers dependable power with long life. Transmits power direct to rear wheel with modern Dynaglide. Easy automatic pedal or pull starting. Special control permits pedalling if desired. Perfect balance and comfort. Anyone can ride a Commando Motor Bike—safe and easy. Rear mounting of motor eliminates hard steering, dirt, fumes and heat. Really trouble-free! Rugged heavy duty cycle, custom built by famed Schwinn. Ride for health and pleasure; ride to work or school; make deliveries. Order now. Easy payments available. Ask for free circular.
Commando Motor Bike Town & Country Cruiser Model .... 1 cyl.—1½ hp. motor, complete—no extras to buy..... **$199.50**
Commando Motor Bike Super Chief Model .... Motor cycle-type 24" wheels; large flange-type brakes; heavy spring fork; powerful Commando twin cylinder 3 hp. motor. Complete—no extras to buy..... **$249.50**
EXTRA! Convert your own pedal bike into a motorized miracle in one hour with a Commando Motor. Complete with easy-to-follow fittings and instructions. Commando Captain Bike Motor, single-cylinder, 1½ hp. Wt. 35 lbs. Complete—nothing else to buy. Item C30. Factory Price **$125.00**
Deluxe Twin-Cylinder Commando General Bike Motor, 3 hp., Wt. 42 lbs. Item C31. Factory Price..... **$149.50**
Dealers: Send for our special proposition.

CARRY-AIR

(Item 32) Stainless steel tank—capacity 500 cu. in. at 400 lbs. press. complete with inlet and shutoff valves, press. gauge, detachable air tire chuck. Fill at any service station. Carry air for tire inflation, blowing out lines, spray painting, insecticides, etc. One emergency pays back cost. Wt. 10 lbs. Worth $20.00. Our price..... **$8.95**
(Item 55) With big double tank (1000 cu. in.)..... **$11.95**
(Item 58) Tank only, 500 cu. in. (no fittings)..... **$5.95**

MASTER SNOW BLOW

No Pushing — Self-Propelled
It's a lawn mower
It's a power sickle
It's a cultivator
It's a plow
It's a bulldozer
It's a rotary tiller

(Item 206)

Here at last is a powerunit that does everything for you year 'round. Does terrific job of clearing snow. Built-in power takeoff to drive pumps, saws, generators, etc. Safety clutch—can't burn out. More versatile and efficient than tractors costing twice as much. Basic self propelled 2 hp. tractor—Briggs or Clinton engine. Only **$119.50**
Tractor shown with snow blow attachment.
Snow Blow..... **$39.50**
Lawn Mower Hitch..... **$4.50**
Cultivator..... **$8.75**
Rotary Tiller..... **$42.50**
Sickle Bar-Mower..... **$42.50**
Bulldozer..... **$11.25**
Freight prepaid to most areas. Easy payment plan available.

MASTER AIR COMPRESSOR

(Item 209) High pressure type for large volume of air for heavy duty service. For paint spraying, inflating truck and auto tires, greasing, and the hundreds of other jobs done by compressed air. Piston type, 2" bore compressor with built-in air filter. Master built with hi-strength alloys and precision bearings. Stainless steel tank, 12"x24", 2100 cu. in. cap. Safe up to 500 lbs. Equipped with automatic switch that starts and stops motor to maintain desired pressure (up to 150 lbs.) and check valve, safety valve, gauge, shut-off valve, 20 ft. air hose and tire chuck. Beautifully balanced on ball bearing wheels and rubber tires. Low factory prices.
With 1½ hp. 110 v. A.C. motor (Reg. $175.00) (Item 209)..... **$98.50**
With 1½ hp. motor (Reg. $199.50) (Item 209A)..... **$119.50**
With 2 hp. Briggs Gas Engine (Reg. $199.50) (Item 209B)..... **$109.50**
Write for price of compressor only. A complete line of spray guns and air tanks available.

Variable Speed Selector

(Item 68)

Heavy duty, made by **B. F. GOODRICH** for industrial use. Provides instant speed changes for any drive. For machine tools, dryers, printing, conveyors, production lines, hoists — any operation requiring variable speed. Ideal for midget autos. Employs reliable "trouble free" planetary system. No hydraulic power losses or creeping. Infinite range, smooth operation, easy installation (data included). 3 sizes: ½-1 hp. wt. 36 lbs.; 1-2 hp. wt. 55 lbs.; 2-3 hp. wt. 105 lbs. Reg. list $228, $252 and $352. Our prices are... **$79.50, $89.50** and **$114.50.**

Factory Prices on Catalog Items

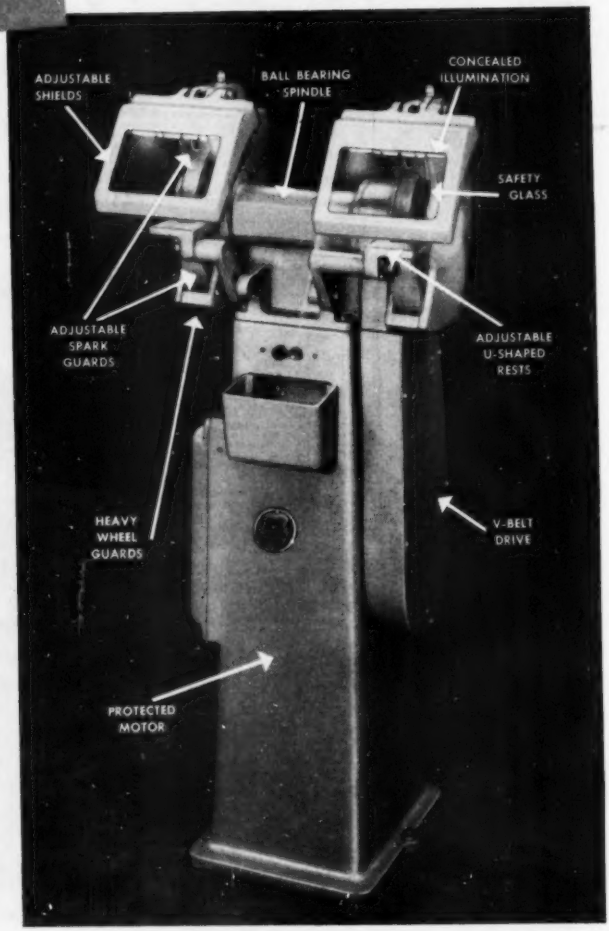
Send 10c for **BIG 1953** catalog. Hundreds of bargains.

Prices f.o.b. Factory. 10 day Money back guarantee. Send check or Money Order

MASTER MECHANIC MFG. CO., DEPT. 80-B Burlington, Wis.

New SOUTH BEND Pedestal GRINDER

A ruggedly built grinder that will give long, dependable service under hard usage. Ideal for production, maintenance and toolroom work. Pedestal mounting of motor provides greater work clearance at grinding wheels and protects motor. Also, removes load and weight of wheels from motor bearings and practically eliminates vibration. Amply powered. Send coupon for full information.



SPECIFICATIONS

Wheel Sizes: 8" (½ h.p. motor), 10" (¾ h.p. motor). **Spindle:** Approximate speed 2450 r.p.m. Sealed ball bearings. **Motor:** Standard 2875 r.p.m. 50 cycle or 3450 r.p.m. 60 cycle, also D.C. **Over-all Dimensions:** 49½" high, 18" wide, 20½" deep (10" Grinder ½" wider).

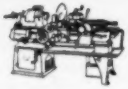
SEND INFORMATION CHECKED:

☐ SOUTH BEND GRINDER

☐ TOOLS & ATTACHMENTS

☐ 9" and 10" BENCH LATHES

☐ 10" to 16-24" FLOOR LATHES


☐ ½" and 1" Collet TURRET LATHES

☐ 14" DRILL PRESSES

☐ 7" BENCH SHAPERS

Name _____ Company _____

Street _____ City & State _____

Building Better Tools Since 1906 • **SOUTH BEND LATHE** • South Bend 22, Indiana

I'll Train Good Job

Be a Success as a RADIO-TELEVISION Technician

See Inside

NRI Training Can Lead to Jobs Like These in Radio-Television

BROADCASTING: Chief Technician, Chief Operator, Power Monitor, Recording Operator, Remote Control Operator. SERVICING: Home and Auto Radios, P.A. Systems, Television Receivers, Electronic Controls, FM Radios. IN RADIO PLANTS: Design Assistant, Service Manager, Tester, Serviceman. SHIP AND HARBOR RADIO: Chief Operator, Radiotelephone Operator. GOVERNMENT RADIO: Operator in Army, Navy, Marine Corps, Forestry Service Dispatcher. AVIATION RADIO: Transmitter Technician, Receiver Technician.

Read What NRI Graduates Say

TV Good for Trained Men. "I am now servicing Television. The training from your course enabled me to repair TV receivers without any trouble."—Roy Currier, Fair Haven, Vt.

$10 to $15 Week Spare Time. "Four months after enrolling, was able to service radios—averaged $10 to $15 week spare time. Now have full time business." — Wm. Weyde, Brooklyn, N. Y.

Works on TV Color. "My position with WNBT is video control engineer. I owe a lot of my success to your textbooks."—Warren Deem, Malverne, N. Y.

Has Growing Business. "Am becoming an expert Teletrician as well as Radiotrician. Without your practical course this would have been impossible." — Philip G. Brogan, Louisville, Ky.

Cut Out and Mail Postage-Free Card

BUSINESS REPLY CARD

No Postage Stamp Necessary If Mailed In The United States

4c POSTAGE WILL BE PAID BY

NATIONAL RADIO INSTITUTE

16th and U Sts., N.W.

Washington 9, D. C.

FIRST CLASS

Permit No. 20-R

(Sec. 34.9, P.L.&R.)

Washington, D.C.

YOU LEARN BY Spare Time W

I'll Train You AT HOME in Good Jobs in RADIO

America's Fast-Gr
Industry Offers

1. EXTRA MONEY IN

Many students make $5, $10 a week and
neighbors' Radios in spare time while learn
I start sending you SPECIAL BOOKLET
Tester you build with kits I send helps
servicing sets, gives PRACTICAL EXP
common to Radio and Television. All equi
Send postage-free card today for Actual L

2. GOOD PAY JOB

What
year f
be on your way toward a good job or a
Radio-Television? NRI Courses lead to the
Radio and TV servicing, P.A., Auto Radio,
tronic Controls Technicians, Radio and T
Ship and Airways Operators and Technic
has over 105 million home and auto Radios
ing Stations. Radio is growing, more exp

3. BRIGHT FUTURE

Thi
in T
from coast to coast with over 15,000,000
TV stations operating. This means good
futures for operators, installation and serv
the time to get ready for a successful f
both Radio and Television principles and e
you practice on circuits common to both

Television is Today's Goo

Over 1800 additional Television stations have
expecting to be operating in 1953. That will c
of sets to boom in areas where there is no tel
opport
if you
now.
techni
good
will in

Fin
Tel

Keep
home.
succes
nician
experi
gramm
cide
know
the i
career

N
Send
for m
You
son. A
to B
Televi
ates a
ment
Mail
Pres.,
ington

YOU LEARN BY PRACTICING *in* Spare Time WITH KITS I SEND

With both my Communications Course and my Servicing Course I send you many kits of parts you use to build equipment for practical experience. They "bring to life" my easy-to-understand, illustrated lessons. Shown here are just a few pieces of equipment you build. You use them to make many tests, experiment with circuits common to both Radio and Television. Read about and see photos of other equipment in my FREE 64-page Book. All equipment is yours to keep! Mail card now. No Postage Needed.

The Tested Wa

n Spare Time for
O-TELEVISION

Growing
's You
N SPARE TIME

k and more EXTRA fixing learning. The day you enroll KLETS that show you how. elps you make extra money EXPERIENCE on circuits equipment is yours to keep ual Lesson and 64-page Book.

What will you be doing one ear from today . . . will you or a business of your own in to these and many other jobs: Radio, Lab, Factory and Elec- nd TV Broadcasting, Police, chnicians. The United States Radios—over 2,900 Broadcast- expansion is on the way.

Think of the opportunities in Television. It now reaches ,000 TV sets now in use; 108 good pay jobs with bright d service technicians. Now is ful future. My lessons cover and equipment I furnish gives both Radio and Television.

Good Job Maker

have been authorized with many will cause the sale and servicing no television now. All this spells opportunity, good pay, progress if you act to prepare yourself now. Qualified Radio-Television technicians are making unusually good money. Now the demand will increase; the field is growing.

Find Out What Radio-Television Offers You

Keep your job while training at home. Hundreds I've trained are successful Radio-Television technicians. Most had no previous experience, many no more than grammar school education. Decide now that you are going to know more and earn more! Take the important first step to a career and security.

MAIL CARD NOW!

Send the postage-free card now for my FREE DOUBLE OFFER. You get Actual Servicing Lesson. Also my 64-page book, "How to Be a Success in Radio-Television." Read what my graduates are doing, earning; see equipment you practice with at home. Mail card now. J. E. SMITH, Pres., National Radio Inst., Washington 9, D. C. Our 39th year.

Way to Better Pay

I TRAINED THESE MEN AT HOME FOR SUCCESS IN RADIO-TELEVISION

Now Has Own Shop. "Got laid off my machine shop job which was best thing that ever happened to me as I opened a full time Radio shop."—Ernest T. Slate, Corsicana, Texas.

Good Job with Station. "I am broadcasting engineer at WLPM. Another technician and I have opened a Radio-TV service shop in our spare time."—J. H. Bangley, Jr., Suffolk, Va.

First Job Thru NRI. "My first job was operator with KDLR obtained for me by your Graduate Service Dept. Now charge of Radio Equipment for Police and Fire Dept."—T. S. Norton, Hamilton, Ohio.

Paid for Course in Spare Time. "By the time I graduated I had paid for my course, a car and testing equipment essential to Radio Servicing." — E. J. Streitenberger, New Boston, Ohio.

Want Your Own Business?

Many NRI trained men start their own business with capital earned in spare time. Let me show you how you can be your own boss. Robert Dohmen, New Prague, Minn., shown at left, says, "Am now tied in with two television outfits and do warranty work for dealers. Often fall back to NRI textbooks."

CUT OUT ON DOTTED LINE

Mail this Card to Get 2 BOOKS FREE

The ABC's of SERVICING

ACTUAL LESSON

This card entitles you to actual lesson on Servicing. It will convince you that learning Radio-Television at home is easy, practical.

64 Pg. BOOK

MY DOUBLE OFFER also includes 64-page Book, "How to Be a Success in Radio-Television." You'll see what my graduates are doing, earning; see photos of equipment I send.

NO STAMP NECESSARY

MR. J. E. SMITH, President, Dept. 3AB
National Radio Institute, Washington 9, D. C.

Mail me Sample Lesson and 64-page Book, "How to Be a Success in Radio-Television"—Both FREE. (No salesman will call. Please write plainly.)

NAME ..... AGE .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....

See other side

Get into...

PLASTIC LAMINATING AT HOME!

Sensational New "ONE MAN BUSINESS" ..pays $10 to $20 profit for each dollar of cost.

Make $20 to $30 a day by our MAGIC MAIL PLAN... get orders and cash from your mailman!

Here's the newest and most fascinating of all home-operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within the reach of the small operator. Can be operated in a corner of the kitchen, basement, or garage. And any man or woman, regardless of age, education, or experience—can learn this interesting work *in a few minutes of reading*—can turn out professional jobs *after one hour's practice.*

TWO EXCITING FIELDS FOR BIG PROFITS!

No house-to-house canvassing. No face-to-face selling. We not only supply the equipment you need for the work, but also show you exactly how to cash in big daily profits from two big demand fields.

A FORTUNE IN PLASTIC SEALING

Millions of people want to protect valuable cards, photographs, documents and papers against wear, soil, and damage. By our MAGIC MAIL Plan you get this business through the mails. Open envelopes and take out money and orders. Details of this plan will amaze you. It will be sent free. Just mail coupon.

ENORMOUS PROFITS IN LAMINATING

A creative, artistic business. Gift shops sell your entire output. Just a few of thousands of giftwares illustrated on this page. Beautiful colors. Endless designs. Exclusive "one of a kind" appeal brings sales at ten to twenty times the cost of materials. Beautiful illustrations and instructions for making these artistic novelties sent free.

The opportunities in Plastic Laminating are so big that space here does not permit even skimming the surface. To get any idea **FREE** at all of the size of these markets and your place in this sensational business you must read the details. See for yourself how easy it is to do the work—how you can put plastic sheets into your machine and take out a fortune—how money and orders come to you in the mail—how gift shops clamor to get more and more of your creations—how you can start with one machine and build up a big production plant with others doing the work—how you can get money and business from every State in the Union—how you can achieve independence without study or experience.

Thousands of Beautiful Art Creations

No one yet has been able to list the thousands of gorgeous articles that can be made by Laminating as explained in our Free Information. Just a few of these objects are

COSTUME JEWELRY—CIGARETTE BOXES—JEWEL CASES—GLOVE AND HANDKERCHIEF BOXES—CUFF LINKS—NOVELTY BUTTONS—TRAY—CANDLESTICKS—COASTERS—CLOCK CASES—LAMP BASES PICTURE FRAMES—BOOK ENDS—PAPER KNIVES—KEY CHAIN CHARMS—CHECKERS—CHESSMEN—ADVERTISING SIGNS—NAME-PLATES—BOOKMARKS—BELT BUCKLES—TIE RACKS—KEEPSAKES OF ALL KINDS.

RUSH COUPON

FREE Never before has such an opportunity been offered the small, home-operator—an opportunity to gain complete personal independence in a big money business of your own. All information, fully illustrated with pictures, is free. Send the coupon—or send your name on a post card. There is no charge now, or at any other time. We may be limited in the number of Warner Laminators that can be made up, so don't put this off. Send for the information on this exciting opportunity today.

WARNER ELECTRIC CO.
1512 Jarvis, Dept. L-91, Chicago 26, Illinois

$5-$10-and $20 BILLS COME TO YOU IN THE MAIL

By our MAGIC MAIL Plan you sit at home, send out mail, and get back money and orders. Additional profits in supplying local people with lifetime protection for articles such as these:

SNAPSHOTS—IDENTIFICATION CARDS—DISCHARGE PAPERS—DRIVERS' LICENSES—SOCIAL SECURITY CARDS—VOTERS REG. CARDS—MENUS—BIRTH CERTIFICATES—CREDIT CARDS—BIRTH AND WEDDING ANNOUNCEMENTS—RAILROAD PASSES—IMPORTANT DOCUMENTS OF ALL KINDS.

Lifetime protection. See how laminating protects against wear, soiling, and moisture damage with its smooth, flexible, plastic covering on each side. LIFE-TIME PROTECTION needed for valuable or sentimental objects of all kinds—even a priceless whisp of hair can be laminated. Think of the countless thousands of profit items for your Laminating Press.

WARNER ELECTRIC CO. Dept. L-91
1512 Jarvis Avenue, Chicago 26, Illinois

Rush complete information with illustrations showing the things I can make and the money possibilities in Plastic Laminating. All this is free. I do not pay a penny now or at any other time. No salesman is to call. Send all facts by prepaid mail. Be sure to tell me how I get orders and money from my Postman by your MAGIC MAIL Plan.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____